

**FINAL AS-ADMINISTERED WALKTHROUGH JPMS**

**FOR THE PRAIRIE ISLAND INITIAL EXAMINATION - AUGUST 2002**

Facility: Prairie IslandExam Level (circle one): (RO) / SRO(I) / SRO(U)Date of Examination: 8/12/02

Operating Test No.: \_\_\_\_\_

## B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. Transfer SI to Recirculation with Failure of One Safeguard Train [ JPM B.1.F ] [ K/A 006A4.02 ] [ 4.0/ 3.8 ]	D,A,L,S	2
b. Raise #12 Accumulator Level [ JPM SI-2S, Rev 1 ] [ K/A 006A1.13 ] [ 3.5/3.7 ]	D,S	3
c. Lineup RHR and Commence Phase II Cooldown using RHR Pump [ JPM RH-5S ] [ K/A 005A4.01 ] [ 3.6/3.4 ]	D,L,S	4P
d. Perform "Quarterly Turbine Stop, Governor, and Intercept Valve Test" per SP 1054 [ K/A 045A4.01, 045A4.06 ] [ 3.1/2.9, 2.8/2.7 ]	N,S	4S
e. Manually Start D1 from the Control Room and Load onto Bus 15 [ JPM EG-6S ] [ K/A 064A4.06 ] [ 3.9/ 3.9 ]	D,S	6
f. Perform NIS Power Range Daily Calibration with Thermal Power greater than Instrument Power per SP 1005 [ K/A 015A1.01 ] [ 3.5, 3.8 ]	N,A,S	7
g. Respond to an Abnormal Radiation Level During Waste Gas Release [ JPM WG-1SF ] [ K/A 071A2.02, 071A3.03 ] [ 3.3/3.6, 3.6/3.8 ]	D,A,S	9

## B.2 Facility Walk-Through

a. Manually Borate the RCS from Outside the Control Room [ JPM VC-19F-1 ] [ K/A 004A2.14 ] [ 3.8/3.9 ]	D,A,R	1
b. Transfer Unit 1 Auxiliary Feedwater Pump Suction from the CST to Cooling Water per C28.1 AOP2 [ K/A 061K4.01 ] [ 4.1/4.2 ]	N,L	4S
c. Cross-Connect U2 to U1 CC System per 1C14 AOP3 [ K/A 008A2.01 ] [ 3.3, 3.6 ]	N,R	8

\* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

Facility: Prairie IslandDate of Examination: 8/12/02Exam Level (circle one): RO / SRO(I) / SRO(U)

Operating Test No.: \_\_\_\_\_

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**B.2 Facility Walk-Through**

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RO B.I. a

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Transfer SI to Recirculation  
With Failure of One Safeguard  
Bus

Job Performance Measure No: SRO/ROB.1.a

K/A Reference: 006A4.02 [4.0/3.8]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance ☐ Actual Performance ☒ Classroom ☐ Simulator ☒ Plant ☐

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- A medium break LOCA has occurred on Unit 1.
- All actions in 1E-O performed to TRANSITION.
- All actions in 1E-1 completed through and including Step 5.
- Preparation for switchover per 1 ES-1.2, step 2 has been completed. (Attachment K complete)
- *D6 D1 OOS (due to common IC set for other JPMs) #P*

Task Standard: Train B safeguard equipment in recirculation mode.

Required Materials: None

General References: 1ES-1.2 and 1ES-1.3

Initiating Cues:

- The Unit 1 SS directs you to continue with 1ES-1.2 starting at step 3, AND place 11 SI Pump in the recirculation mode via 11 RHR Pump.

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 15 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

1 Performance step: **CRITICAL STEP**

SAT/UNSAT

**Reset SI.**

Standard:

**SI reset as indicated by Annunciator 47014-0504 ON and 47014-0604 OFF.**

Comment:

**CUE:** None.

2 Performance step:

SAT/UNSAT

Both Trains of Safeguard Pump(s) Available for recirculation

Standard:

Availability of both trains checked.

Comment:

**CUE:** IF asked as SS, THEN report that both trains of safeguards pumps are available for recirculation.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

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  3   Performance step: **CRITICAL STEP**

SAT/UNSAT

**STOP One Train of Safeguard Pumps:**

- a. Stop one SI pump
- b. Stop one RHR pump

Standard:

**11 SI and RHR pump stopped.**

Comment:

**CUE:** None.

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  4   Performance step:

SAT/UNSAT

**Stop One Train of Safeguard Pumps:**

Perform the following:

- 1) Reset containment spray signal
- 2) Stop one containment spray pump

Standard:

Containment spray is reset if necessary and one containment spray pump is stopped.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

5 Performance step: **CRITICAL STEP**

SAT/UNSAT

**CLOSE SI Test Line to RWST Valves:**

- **MV-32202**
- **MV-32203**

Standard:

**MV-32202 AND MV-32203 closed using CS-46204 and CS-46205.**

Comment:

**CUE:** None.

6 Performance step:

SAT/UNSAT

Caution - Venting the bonnets of sump B to RHR MVs per ATTACHMENT K must be completed before opening the following valves.

Standard:

Caution read.

Comment:

**CUE:** IF applicant requests the status of Attachment K, THEN state "Attachment K is complete."



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

7 Performance step:

SAT/UNSAT

**OPEN** Sump B to RHR Isolation Valves for Idle RHR Pump:

a. Open one set of valves for idle safeguard train:

MV-32075 and MV-32077

Standard:

MV 32075 opening attempted using CS--46208.

**Evaluator Note:** MV-32075 will not open. The Examinee should transition to 1ES-1.3 per step 7 RNO column. **This is the beginning of the alternate path.**

Comment:

**CUE:** IF applicant requests guidance from the SS, THEN state "Take actions as directed by the procedure"

8 Performance step:

SAT/UNSAT

**CHECK** RWST Level - LESS THAN 28%.

Standard:

**Evaluator Note:** RWST level should be less than 28% by now.

Stay in step 1 until RWST level is less than 28%.

Comment:

**CUE:** None.

Appendix C

Form ES-C-1 (R8, S1)

**PERFORMANCE INFORMATION**

(Denote critical steps with **BOLD**)

9 Performance step: **CRITICAL STEP**

SAT/UNSAT

**STOP RHR Pump.**

Standard:

**12 RHR pump stopped using CS-46185.**

Comment:

**CUE:** None.

10 Performance step:

SAT/UNSAT

**CLOSE** SI Test Line to RWST Valves:

- MV-32202
- MV-32203

Standard:

**Evaluator Note:** The valves were closed in ES-1.2

MV-32202 AND MV-32203 closed using CS-46204 and CS-46205.

Comment:

**CUE:** None

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

11 Performance step: **CRITICAL STEP**

SAT/UNSAT

**OPEN Sump B to RHR Isolation Valves for Operable RHR Pump:**

- **MV-32075 and MV-32077**
- OR-
- **MV-32076 and MV-32078**

Standard:

**Evaluator Note:** These valves have a long stroke time.

**MV-32076 and MV-32078 opened using CS-46209 and CS-46211.**

Comment:

**CUE:** None.

12 Performance step: **CRITICAL STEP**

SAT/UNSAT

**CLOSE RWST to RHR Isolation Valves for Operable RHR Pump:**

- **MV-32084**
- OR -
- **MV-32085**

Standard:

**Evaluator Note:** These valves have a long stroke time.

**MV-32085 closed using CS-46203.**

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

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13 Performance step:

SAT/UNSAT

**VERIFY** RHR to Reactor Vessel Nozzle Valves (MV-32064 And MV-32065)- OPEN

Standard:

MV-32064 And MV-32065 verified open by checking red lights on CS-46223 and CS-46224.

Comment:

**CUE:** None.

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14 Performance step:

SAT/UNSAT

**VERIFY** Sump B Level Adequate to Support RHR Pump Operation:

- Narrow Range level - 100%
- OR -
- Wide Range level - GREATER THAN 1.75 FEET

Standard:

Adequate Sump B level verified by checking 1LI 725, 1LI 726, 1LI 727, or 1LI 728.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

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**15** Performance step: **CRITICAL STEP**

SAT/UNSAT

**PLACE Operable RHR Train in Recirculation Operation:****a. VERIFY sump B to RHR isolation valves for operable RHR train are - FULL OPEN**

- **MV-32075 AND MV-32077**
- **OR-**
- **MV-32076 AND MV-32078**

Standard:

**Evaluator Note:** Critical step is satisfied as long as the valves are full open before starting the RHR pump in the next step.**MV-32076 and MV-32078 verified <sup>Full</sup>open by checking red lights on CS-46209 and CS-46211.**

Comment:

**CUE:** None.

---

**16** Performance step: **CRITICAL STEP**

SAT/UNSAT

**PLACE Operable RHR Train in Recirculation Operation:****b. START operable RHR pump**

Standard:

**12 RHR Pump started using CS46185.**

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

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17 Performance step:

SAT/UNSAT

**CHECK** RCS Pressure - LESS THAN 125 PSIG

Standard:

**Evaluator Note:** - Pressure will **NOT** be less than 125 psig

Pressure checked on IPI-709, IPI-710, IPRA2O, or ERCS. Applicant goes to step 12 per RNO.

Comment:

**CUE:** None.

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18 Performance step: **CRITICAL STEP**

SAT/UNSAT

**Stop SI Pump**

Standard:

**12 SI Pump stopped using CS-46179.**

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

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<u>19</u> Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
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**CLOSE SI Pump Suction Isolation Valve for Operable SI Pump:**

- **MV-32162**
- **- OR -**
- **MV-32163**

Standard:

**MV-32163 closed using CS-46193.**

Comment:

**CUE:** None.

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<u>20</u> Performance step:	SAT/UNSAT
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**CHECK RHR Pump Discharge Pressure - LESS THAN 210 PSIG:**

- **IPI-628**
- **-OR-**
- **IPI-629**

Standard:

Applicant checks RHR pressure less than 210 psig on 1 PI-628.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

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21 Performance step: **CRITICAL STEP**

SAT/UNSAT

**OPEN RHR Supply to Operable SI Pump Isolation Valve:**

- **MV-32206**
- **-OR-**
- **MV-32207**

Standard:

**MV-32207 opened using CS-46207.**

Comment:

**CUE:** None.

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22 Performance step: **CRITICAL STEP**

SAT/UNSAT

**START SI Pump.**

Standard:

**12 SI Pump started using CS-46179.**

Comment:

**CUE:** None.



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

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23 Performance step:

SAT/UNSAT

**VERIFY** SI Flow (1 FI-925).

Standard:

SI flow verified on I FI-925.

Comment:

**CUE:** None.

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24 Performance step: **CRITICAL STEP**

SAT/UNSAT

**CLOSE RHR to Reactor Vessel Nozzle Valve for RHR Pump Supplying SI Pump Suction:**

- **MV-32064**
- **- OR -**
- **MV-32065**

Standard:

**MV-32065 closed using CS-46224.**

Comment:

**CUE:** None.

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**Terminating cue:** 12 SI pump being supplied from 12 RHR pump via sump B RHR supply to Reactor Vessel valve MV-32065 closed.

VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

**Initial Conditions:**

- A medium break LOCA has occurred on Unit 1.
- All actions in 1 E-O performed to TRANSITION.
- All actions in 1E-1 completed through and including Step 5.
- Preparation for switchover per 1 ES-1.2, step 2 has been completed. (Attachment K complete)

**Initiating Cues:**

- The Unit 1 SS directs you to continue with 1ES-1.2 starting at step 3, AND place 11 SI Pump in the recirculation mode via 11 RHR Pump.

UNIT 1  
TRANSFER TO RECIRCULATION

LEVEL OF USE

CONTINUOUS USE
<ul style="list-style-type: none"><li>• Continuous use of procedure required.</li><li>• Read each step prior to performing.</li><li>• Mark off steps as they are completed.</li><li>• Procedure <b>SHALL</b> be at the work location.</li></ul>

O.C. REVIEW DATE <i>4/5/00</i>	REVIEWED BY: <i>D Smith</i>	DATE: <i>6-14-01</i>
	APPROVED BY: <i>Peter St. Louis</i>	DATE: <i>6/14/01</i>

## TRANSFER TO RECIRCULATION

### A. PURPOSE

This procedure provides the necessary instructions for transferring the safety injection system to the recirculation mode.

### B. ENTRY CONDITIONS

1. Transition entry from:

- 1E-1, Step 26
- 1ES-1.1, Step 1
- 1ECA-0.2, Step 2
- 1ECA-2.1, Step 8
- 1ECA-3.1, Step 1
- 1ECA-3.2, Step 1
- 1FR-C.1, Step 1
- 1FR-C.2, Step 1
- 1FR-C.3, Step 1
- 1FR-H.1, Step 20

### C. ATTACHMENTS:

ATTACHMENT K: Unit 1 Alignment For Switchover To Recirculation

Number:  1ES-1.2	Title:  TRANSFER TO RECIRCULATION	Revision Number:  REV. 15
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><b>Caution</b></p> <ul style="list-style-type: none"> <li>• Switchover to recirculation phase may cause high radiation in the Auxiliary Building.</li> <li>• Cooling water pressure should be monitored during the preparation to switchover to recirculation. Removal of the CC HX cooling water outlet CV stops may cause pressure to decrease. <u>IF</u> cooling water pressure decreases to less than 65 psig. <u>THEN</u> pressure recovery may be necessary per C35 AOP1, LOSS OF PUMPING CAPACITY OR SUPPLY HEADER WITH SI.</li> </ul>	
1	Verify Containment Sump B Level - INCREASING	Go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.
2	Prepare For Switchover To Recirculation Phase: <ul style="list-style-type: none"> <li>a. Stop Spent Fuel Pool Ventilation System</li> <li>b. Notify Auxiliary Building Operator to complete local recirculation alignment actions per ATTACHMENT K</li> </ul>	
	<p><b>Caution</b> <u>IF</u> offsite power is lost after SI reset. <u>THEN</u> manual action may be required to restart safeguard equipment.</p>	
3	Reset SI	
	<p><b>Caution</b> At least one safeguard train <i>SHALL</i> be maintained in service to ensure adequate core cooling. <u>IF</u> one SI/RHR train is <u>NOT</u> injecting. <u>THEN</u> 1ES-1.3, TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE, should be performed.</p>	
4	Both Trains Of Safeguard Pump(s) Available For Recirculation	Go to 1ES-1.3, TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE, Step 1.

Number:  1ES-1.2	Title:  TRANSFER TO RECIRCULATION	Revision Number:  REV. 15
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	<p>Stop One Train Of Safeguard Pumps:</p> <ul style="list-style-type: none"> <li>a. Stop one SI pump</li> <li>b. Stop one RHR pump</li> <li>c. Perform the following: <ul style="list-style-type: none"> <li>1) Reset containment spray signal</li> <li>2) Stop one containment spray pump</li> </ul> </li> </ul> <p>NOTE      <i>To save time when making valve lineups, valve movement should be verified, then continue with the next step.</i></p>	
6	<p>Close SI Test Line To RWST Valves:</p> <ul style="list-style-type: none"> <li>• MV-32202</li> <li>• MV-32203</li> </ul>	<p><u>IF</u> one valve closes, <u>THEN</u> go to Step 7.</p> <p><u>IF NOT</u>, <u>THEN</u> locally close one valve.</p>
<p><b>Caution</b>      <i>Venting the bonnets of Sump B to RHR MVs per ATTACHMENT K must be completed before opening the following valves.</i></p>		
7	<p>Open Sump B To RHR Isolation Valves For Idle RHR Pump:</p> <ul style="list-style-type: none"> <li>a. Open one set of valves for idle safeguard train: <ul style="list-style-type: none"> <li>• MV-32075 and MV-32077</li> </ul> </li> </ul> <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> <li>• MV-32076 and MV-32078</li> </ul>	<p>Go to Step 1ES-1.3, TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE, Step 1.</p>

Number:  1ES-1.2	Title:  TRANSFER TO RECIRCULATION	Revision Number:  REV. 15
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8	Close RWST To RHR Isolation Valve For Idle RHR Pump: <ul style="list-style-type: none"> <li>• MV-32084</li> <li>-OR-</li> <li>• MV-32085</li> </ul>	Perform the following: <ul style="list-style-type: none"> <li>a. Open RHR pit cover.</li> <li>b. Locally close valve.</li> <li>c. Close RHR pit cover.</li> </ul>
9	Verify RHR To Reactor Vessel Nozzle Valves (MV-32064 And MV-32065) - OPEN	Open valve(s) .
10	Verify Sump B Level Adequate To Support RHR Pump Operation: <ul style="list-style-type: none"> <li>• Narrow Range level - 100%</li> <li>-OR-</li> <li>• Wide Range level - GREATER THAN 1.75 FEET</li> </ul>	Go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1



Number:  1ES-1.2	Title:  TRANSFER TO RECIRCULATION	Revision Number:  REV. 15
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	<p>Place Idle RHR Train In Recirculation Operation</p> <p>a. Verify sump B to RHR isolation valves for idle RHR train are - FULL OPEN</p> <ul style="list-style-type: none"> <li>• MV-32075 <u>AND</u> MV-32077</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• MV-32076 <u>AND</u> MV-32078</li> </ul> <p>b. Start idle RHR pump</p>	<p>a. Do <u>NOT</u> start RHR pump. Go to 1ES-1.3, TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE, Step 1</p> <p>b. Attempt to locally start pump.</p> <p><u>IF</u> pump can <u>NOT</u> be started, <u>THEN</u> go to 1ES-1.3, TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE, Step 1</p>
12	<p>Check RCS Pressure - LESS THAN 125 PSIG</p>	<p>Go to Step 15.</p>

Number:	Title:	Revision Number:
1ES-1.2	TRANSFER TO RECIRCULATION	REV. 15

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13	Verify Recirculation Flow To Reactor Vessel (1FI-928 Or 1FI-626)	<p><u>IF</u> NO flow, <u>THEN</u>:</p> <p>a. Verify RHR pump discharge pressure.</p> <p><u>IF</u> NO discharge pressure, <u>THEN</u> stop RHR pump.</p> <p>b. Verify valves listed in Steps 6 through 9 have been properly positioned.</p> <p>c. <u>IF</u> alignment has been corrected, <u>THEN</u> start RHR pump.</p> <p>d. Verify RHR pump discharge pressure <u>AND</u> flow.</p> <p><u>IF</u> NO discharge pressure, <u>THEN</u> stop RHR pump <u>AND</u> go to 1ES-1.3, TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE, Step 1.</p> <p><u>IF</u> NO flow, <u>THEN</u> go to Step 15.</p>
14	Go To Step 21	
15	Close SI Pump Suction Isolation Valve For Idle SI Pump:	Locally close valve.
	<ul style="list-style-type: none"> <li>• MV-32162</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• MV-32163</li> </ul>	

Number:  1ES-1.2	Title:  TRANSFER TO RECIRCULATION	Revision Number:  REV. 15
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	<p>Check Discharge Pressure Of RHR Pump Aligned To Sump B - LESS THAN 210 PSIG</p> <ul style="list-style-type: none"> <li>• 1PI-628</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• 1PI-629</li> </ul>	<p>Check proper valve alignment.</p> <p><u>IF</u> valve alignment is correct and pressure remains above 210 psig, <u>THEN</u> go to 1ES-1.3, TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE, Step 1.</p>
17	<p>Open RHR Supply To Idle SI Pump Isolation Valve:</p> <ul style="list-style-type: none"> <li>• MV-32206</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• MV-32207</li> </ul>	<p>Locally open valve.</p>
18	<p>Start Idle SI Pump</p>	<p>Attempt to locally start pump.</p> <p><u>IF</u> pump can <u>NOT</u> be started, <u>THEN</u> go to 1ES-1.3, TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE, Step 1.</p>

Number:  1ES-1.2	Title:  TRANSFER TO RECIRCULATION	Revision Number:  REV. 15
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19	Verify SI Flow (1FI-925)	<p>Perform the following:</p> <ul style="list-style-type: none"> <li>a. Stop SI pump.</li> <li>b. Verify valves listed in Steps 15 and 17 properly positioned.</li> <li>c. <u>IF</u> alignment has been corrected, <u>THEN</u> start SI pump.</li> </ul> <p><u>IF</u> flow from the sump to RCS can <u>NOT</u> be established, <u>THEN</u> go to 1ES-1.3, TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE, Step 1.</p>
20	<p>Close RHR To Reactor Vessel Nozzle Valve For RHR Pump Supplying SI Pump Suction:</p> <ul style="list-style-type: none"> <li>• MV-32064</li> </ul> <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> <li>• MV-32065</li> </ul>	
21	Check RWST Level - LESS THAN 8%	<u>WHEN</u> RWST level less than 8%, <u>THEN</u> go to Step 22.

Number:	Title:	Revision Number:
1ES-1.2	TRANSFER TO RECIRCULATION	REV. 15

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><b>Caution</b> <i>IF SI pump injecting in recirculation mode, THEN verify SI flow (1FI-925) is maintained to the core while performing Step 22.</i></p>		
22	<p>Stop Pumps Aligned To RWST:</p> <ul style="list-style-type: none"> <li>a. SI pump</li> <li>b. RHR pump</li> <li>c. Charging pumps</li> <li>d. Perform the following: <ul style="list-style-type: none"> <li>1) Reset containment spray</li> <li>2) Stop containment spray pump</li> </ul> </li> </ul>	
23	<p>Open Sump B To RHR Isolation Valves For Idle RHR Pump:</p> <ul style="list-style-type: none"> <li>a. Open set of valves for idle safeguard train: <ul style="list-style-type: none"> <li>• MV-32075 and MV-32077</li> <li>-OR-</li> <li>• MV-32076 and MV-32078</li> </ul> </li> </ul>	Go to Step 34.
24	<p>Close RWST To RHR Isolation Valve For Idle RHR Pump:</p> <ul style="list-style-type: none"> <li>• MV-32084</li> <li>-OR-</li> <li>• MV-32085</li> </ul>	<p>Perform the following:</p> <ul style="list-style-type: none"> <li>a. Open RHR pit cover.</li> <li>b. Locally close valve.</li> <li>c. Close RHR pit cover.</li> </ul>

Number:  1ES-1.2	Title:  TRANSFER TO RECIRCULATION	Revision Number:  REV. 15
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25	Place Idle RHR Train In Recirculation Operation  a. Verify sump B to RHR isolation valves for idle RHR train are - FULL OPEN  • MV-32075 <u>AND</u> MV-32077  -OR-  • MV-32076 <u>AND</u> MV-32078  b. Start idle RHR pump	a. Do <u>NOT</u> start RHR pump. Go to Step 34.         b. Attempt to locally start pump.  <u>IF</u> pump can <u>NOT</u> be started, <u>THEN</u> go to Step 34.
26	Check RCS Pressure - LESS THAN 125 PSIG	Go to Step 29.

Number:  1ES-1.2	Title:  TRANSFER TO RECIRCULATION	Revision Number:  REV. 15
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27	Verify Recirculation Flow To Reactor Vessel (1FI-928 And 1FI-626)	<p><u>IF</u> NO flow, <u>THEN</u>:</p> <p>a. Verify RHR pump discharge pressure.</p> <p><u>IF</u> NO discharge pressure, <u>THEN</u> stop RHR pump.</p> <p>b. Verify valves listed in Steps 23 and 24 have been properly positioned.</p> <p>c. <u>IF</u> alignment has been corrected, <u>THEN</u> start RHR pump.</p> <p>d. Verify RHR pump discharge pressure <u>AND</u> flow.</p> <p><u>IF</u> NO discharge pressure, <u>THEN</u> stop RHR pump <u>AND</u> go to Step 34.</p> <p><u>IF</u> NO flow, <u>THEN</u> go to Step 29.</p>
28	Go To Step 34	
29	Close SI Pump Suction Isolation Valve For Idle SI Pump:	Locally close valve.
	<ul style="list-style-type: none"> <li>• MV-32162</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• MV-32163</li> </ul>	

Number:	Title:	Revision Number:
1ES-1.2	TRANSFER TO RECIRCULATION	REV. 15

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	NOTE <i>RHR pressure must be less than 210 psig in order to perform Step 30.</i>	
30	Open RHR Supply To Idle SI Pump Isolation Valve:  • MV-32206  -OR-  • MV-32207	Locally open valve.
31	Start Idle SI Pump	Attempt to locally start pump.  <u>IF</u> pump can <u>NOT</u> be started, <u>THEN</u> go to Step 34.
32	Verify SI Flow (1FI-925)	Perform the following:  a. Stop SI pump.  b. Verify valves listed in Steps 29 and 30 properly positioned.  c. <u>IF</u> alignment has been corrected, <u>THEN</u> start SI pump.  <u>IF</u> SI flow can <u>NOT</u> be established, <u>THEN</u> go to Step 34.
33	Close RHR To Reactor Vessel Nozzle Valve For RHR Pump Supplying SI Pump Suction:  • MV-32064  -OR-  • MV-32065	



Number:  1ES-1.2	Title:  TRANSFER TO RECIRCULATION	Revision Number:  REV. 15
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
34	Return To Procedure And Step In Effect	
	- END -	

ATTACHMENT K

UNIT 1 ALIGNMENT FOR SWITCHOVER TO RECIRCULATION

NOTE: Completion of Steps 1 and 2 are necessary to ensure RHR Pump suction can be aligned to Sump B and **SHALL** be performed first.

Step 1 Vent the bonnets of Sump B to RHR MVs by opening AND THEN reclosing the following valves:

SI-32-3, 11 CNTMT SUMP B ISOL MV-32077 BONNET VENT

SI-32-4, 11 CNTMT SUMP B ISOL MV-32078 BONNET VENT

Step 2 Notify Unit 1 Control Room when both RHR MV bonnets have been vented.

Step 3 Perform the following:

Turn off RHR pit portable PAC filter unit. (Breaker located at pit covers) |

Close RHR pit covers. (Switches located at pit covers). |

Close SI Pump shield door by placing 3-way valve in "CLOSE" position.

Align RHR sump pump discharge valves (located above RHR Pits).

- Place WL-87-1, RHR PIT SUMP #11 DISCHARGE, in the "ANNULUS SUMP" position.
- Place WL-87-2, RHR PIT SUMP #12 DISCHARGE, in the "ANNULUS SUMP" position.

Unlock and place the following 480V breakers - "ON":

- MCC 1K1-E2 (MV-32206) (Key #28)
- MCC 1KA2-D1 (MV-32207) (Key #29)

Remove cotter key AND travel stop for the following valves: (A 1 7/16" socket and a 1 7/16" open-end wrench are needed to remove travel stop.)

- CV-31381, 11 CCHX CLG WTR OUTLET CV
- CV-31411, 12 CCHX CLG WTR OUTLET CV

Align WL-86-1, SAMPLE SINK TO CHEM DRAIN/RHR SUMP, to the "CLOSED, Sample Sink Drains to 12 RHR Pit Sump" position (Located halfway up the stairs by the Aux Bldg Operator shack).

Stop the Rad Waste Building Vent System.

UNIT 1  
TRANSFER TO RECIRCULATION WITH ONE  
SAFEGUARD TRAIN OUT OF SERVICE

LEVEL OF USE

CONTINUOUS USE
<ul style="list-style-type: none"><li>• Continuous use of procedure required.</li><li>• Read each step prior to performing.</li><li>• Mark off steps as they are completed.</li><li>• Procedure <b>SHALL</b> be at the work location.</li></ul>

O.C. REVIEW DATE  4/5/00	REVIEWED BY: <i>D. Smith</i>	DATE: 6-14-01
	APPROVED BY: <i>Peter A. [Signature]</i>	DATE: 6/14/01

1ES-1.3  
REV. 10  
Page 2 of 7  
Retention: 5 Yrs.

TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD  
TRAIN OUT OF SERVICE

A. PURPOSE

This procedure provides the necessary instructions for transferring the safety injection system to the recirculation mode with one safeguard train out of service.

B. ENTRY CONDITIONS

1. Transition entry from:

1ES-1.2, Step 4  
1ES-1.2, Step 7  
1ES-1.2, Step 11  
1ES-1.2, Step 13  
1ES-1.2, Step 16  
1ES-1.2, Step 18  
1ES-1.2, Step 19

C. ATTACHMENTS:

NONE

UNIT 1  
TRANSFER TO RECIRCULATION WITH ONE  
SAFEGUARD TRAIN OUT OF SERVICE

LEVEL OF USE

CONTINUOUS USE
<ul style="list-style-type: none"><li>• Continuous use of procedure required.</li><li>• Read each step prior to performing.</li><li>• Mark off steps as they are completed.</li><li>• Procedure <b>SHALL</b> be at the work location.</li></ul>

O.C. REVIEW DATE  4/5/00	REVIEWED BY: <i>D. Smith</i>	DATE: 6-14-01
	APPROVED BY: <i>Pete Anderson</i>	DATE: 6/14/01

TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD  
TRAIN OUT OF SERVICE

A. PURPOSE

This procedure provides the necessary instructions for transferring the safety injection system to the recirculation mode with one safeguard train out of service.

B. ENTRY CONDITIONS

1. Transition entry from:

1ES-1.2, Step 4  
1ES-1.2, Step 7  
1ES-1.2, Step 11  
1ES-1.2, Step 13  
1ES-1.2, Step 16  
1ES-1.2, Step 18  
1ES-1.2, Step 19

C. ATTACHMENTS:

NONE

Number:  1ES-1.3	Title:  TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE	Revision Number:  REV. 10
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><i><b>Caution</b></i> <i>IF only one train of safeguard pumps is available. <u>THEN</u> flow to core must not be stopped for longer than 6 minutes to prevent core dryout <u>AND</u> ensure adequate core cooling.</i></p>	
1	Check RWST Level - LESS THAN 28%	<u>WHEN</u> RWST level less than 28%, <u>THEN</u> go to Step 2.
2	Stop RHR Pump	
	NOTE <i>To save time when making valve lineups, valve movement should be verified, then continue with the next step.</i>	
3	Close SI Test Line To RWST Valves:	<u>IF</u> one valve closed, <u>THEN</u> go to Step 4.
	<ul style="list-style-type: none"> <li>• MV-32202</li> <li>• MV-32203</li> </ul>	<u>IF NOT</u> , <u>THEN</u> locally close one valve.
	<p><i><b>Caution</b></i> <i>Venting the bonnet of Sump B to RHR MV per 1ES-1.2. TRANSFER TO RECIRCULATION, ATTACHMENT K must be completed before opening the valve.</i></p>	
4	Open Sump B To RHR Isolation Valves For Operable RHR Pump:	Go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.
	<ul style="list-style-type: none"> <li>• MV-32075 and MV-32077</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• MV-32076 and MV-32078</li> </ul>	
5	Close RWST To RHR Isolation Valve For Operable RHR Pump:	Perform the following:
	<ul style="list-style-type: none"> <li>• MV-32084</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• MV-32085</li> </ul>	<ul style="list-style-type: none"> <li>a. Open RHR pit cover.</li> <li>b. Locally close valve.</li> <li>c. Close RHR pit cover.</li> </ul>
6	Verify RHR To Reactor Vessel Nozzle Valves (MV-32064 And MV-32065) - OPEN	Manually open valves.

Number:  1ES-1.3	Title:  TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE	Revision Number:  REV. 10
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	<p>Verify Sump B Level Adequate To Support RHR Pump Operation:</p> <ul style="list-style-type: none"> <li>Narrow Range level - 100%</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>Wide Range level - GREATER THAN 1.75 FEET</li> </ul>	<p>Go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1</p>
8	<p>Place Operable RHR Train In Recirculation Operation</p> <p>a. Verify sump B to RHR isolation valves for operable RHR train are - FULL OPEN</p> <ul style="list-style-type: none"> <li>MV-32075 <u>AND</u> MV-32077</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>MV-32076 <u>AND</u> MV-32078</li> </ul> <p>b. Start operable RHR pump</p>	<p>a. Do <u>NOT</u> start RHR pump.</p> <p>Go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.</p> <p>b. Attempt to locally start pump.</p> <p><u>IF</u> pump can <u>NOT</u> be started, <u>THEN</u> go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.</p>
9	<p>Check RCS Pressure - LESS THAN 125 PSIG</p>	<p>Go to Step 12.</p>



Number:  1ES-1.3	Title:  TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE	Revision Number:  REV. 10
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	Verify Recirculation Flow To Reactor Vessel (1FI-928 Or 1FI-626)	<p><u>IF</u> NO flow, <u>THEN</u>:</p> <p>a. Verify RHR pump discharge pressure.</p> <p><u>IF</u> NO discharge pressure, <u>THEN</u> stop RHR pump.</p> <p>b. Verify valves listed in Steps 3 through 6 have been properly positioned.</p> <p>c. <u>IF</u> alignment has been corrected, <u>THEN</u> start RHR pump.</p> <p>d. Verify RHR pump discharge pressure <u>AND</u> flow.</p> <p><u>IF</u> NO discharge pressure, <u>THEN</u> stop RHR pump <u>AND</u> go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.</p> <p><u>IF</u> NO flow, <u>THEN</u> go to Step 12.</p>
11	Go To Step 19	
12	Stop SI Pump	
13	Close SI Pump Suction Isolation Valve For Operable SI Pump:	Locally close valve.
	<ul style="list-style-type: none"> <li>• MV-32162</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• MV-32163</li> </ul>	

Number:  1ES-1.3	Title:  TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE	Revision Number:  REV. 10
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14	<p>Check RHR Pump Discharge Pressure - LESS THAN 210 PSIG</p> <ul style="list-style-type: none"> <li>• 1PI-628</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• 1PI-629</li> </ul>	<p>Check proper valve alignment.</p> <p><u>IF</u> valve alignment is correct and pressure remains above 210 psig, <u>THEN</u> go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.</p>
15	<p>Open RHR Supply To Operable SI Pump Isolation Valve:</p> <ul style="list-style-type: none"> <li>• MV-32206</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• MV-32207</li> </ul>	<p>Locally open valve.</p>
16	<p>Start SI Pump</p>	<p>Attempt to locally start pump.</p> <p><u>IF NOT</u>, <u>THEN</u> go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.</p>
17	<p>Verify SI Flow (1FI-925)</p>	<p>Perform the following:</p> <ol style="list-style-type: none"> <li>Stop SI pump.</li> <li>Verify valves listed in Steps 13 and 15 properly positioned.</li> <li><u>IF</u> alignment has been corrected, <u>THEN</u> start SI pump.</li> </ol> <p><u>IF</u> SI flow can <u>NOT</u> be established <u>AND</u> maintained, <u>THEN</u> go to 1ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.</p>

Number:  1ES-1.3	Title:  TRANSFER TO RECIRCULATION WITH ONE SAFEGUARD TRAIN OUT OF SERVICE	Revision Number:  REV. 10
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18	<p>Close RHR To Reactor Vessel Nozzle Valve For RHR Pump Supplying SI Pump Suction:</p> <ul style="list-style-type: none"> <li>• MV-32064</li> </ul> <p>-OR-</p> <ul style="list-style-type: none"> <li>• MV-32065</li> </ul>	
19	Check RWST Level - LESS THAN 8%	<p><u>WHEN</u> RWST level less than 8%, <u>THEN</u> perform Step 20.</p> <p>Continue with Step 21.</p>
20	<p>Stop Pumps Aligned To RWST:</p> <ul style="list-style-type: none"> <li>a. SI pump</li> <li>b. Charging pumps</li> <li>c. Perform the following: <ul style="list-style-type: none"> <li>1) Reset containment spray</li> <li>2) Stop containment spray pump</li> </ul> </li> </ul>	
21	Return to procedure and step in effect upon entry to 1ES-1.2, TRANSFER TO RECIRCULATION.	
-END-		

---

JPM B.1.6 RO

Copy 1

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Raise #12 Accumulator Level Job Performance Measure No: RO  
B.1.bK/A Reference: 006 A1.13 [3.5/3.7]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

**Method of testing:**Simulated Performance ☐ Actual Performance ☒ Classroom ☐ Simulator ☒ Plant ☐**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

- Unit 1 is at 100% power
- SI system is aligned in normal at power condition
- #12 Accumulator level is at 22%

Task Standard: #12 Accumulator level raised to 56% to 58% and SI system returned to the normal lineup.

Required Materials: 1C18, "Engineered Safeguards System Unit 1", Section 5.4, Rev 10

General References: 1C18, "Engineered Safeguards System Unit 1", Rev 10

**Initiating Cues:**

- You are directed by the Shift Supervisor to raise level in #12 Accumulator with the 12 SI Pump in accordance with 1C18, "Engineered Safeguards System Unit 1", Section 5.4 to between 56% and 58%.
- A local operator is stationed at the 12 SI Pump in preparation for starting the pump.

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 20 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

1 Performance step:

SAT/UNSAT

**VERIFY** local valve SI-15-4, "12 SI PUMP TO TEST LINE" is **OPEN**.

Standard:

**DIRECTS** the Auxiliary Building Operator to verify valve open.

Comment:

**CUE:** The Auxiliary Building Operator reports that valve SI-15-4 is open.

---

2 Performance step:

SAT/UNSAT

**VERIFY** the following valves **OPEN**:

- MV-32202, "SI TEST LINE TO RWST"
- MV-32203, "SI TEST LINE TO RWST"

Standard:

**VERIFIES** open valves MV-32202 and MV-32203.

Comment:

---

3 Performance step:

SAT/UNSAT

**VERIFY** at least ONE of the RWST header isolation valves to the SI Pumps is **OPEN**:

- MV-32079, "RWST TO SI PUMPS"
- OR
- MV-32080, "RWST TO SI PUMPS"

Standard:

**VERIFIES** open valve MV-32079 or MV-32080.

Comment:

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

4 Performance step:

SAT/UNSAT

**DIRECT** Auxiliary Building Operator to manually lubricate the bearings on the #12 SI Pump and to observe the pump run.

Standard:

**DIRECTS** Auxiliary Building Operator to manually lubricate the bearings on the #12 SI Pump and to observe the pump run.

Comment:

**CUE:** The Auxiliary Building Operator reports that he has manually lubricated the bearings on the #12 SI Pump and is stationed to observe the pump run.

---

5 Performance step: **CRITICAL STEP**

SAT/UNSAT

**Start the 12 SI Pump and record the time:**      **Start time:** \_\_\_\_\_

Standard:

**Starts 12 SI Pump.**

Comment:

---

6 Performance step:

SAT/UNSAT

**DIRECT** the Auxiliary Building Operator to locally observe proper SI Pump operation:

- Bearing lubrication (slinger rings)
- Return oil flow indication
- Oil pressure indication

Standard:

**DIRECTS** the Auxiliary Building Operator to observe pump parameters for proper operation.

Comment:

**CUE:** Auxiliary Building Operator reports proper bearing lubrication, return oil flow indication, and oil pressure indication

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

7 Performance step: **CRITICAL STEP**

SAT/UNSAT

NOTE: Accumulator level rises immediately upon opening the accumulator makeup isolation valve.

CAUTION: WHEN CV-31445, "12 ACCUM M-U" is open, THEN an operator shall be designated to have the responsibility for closing the valve within ONE minute following an accident.

**Under administrative control, OPEN CV-31445, "12 ACCUM M-U" using control board switch.**

Standard:

**OPENS CV-31445 using control board switch.**

Comment:

---

8 Performance step: **CRITICAL STEP**

SAT/UNSAT

**WHEN #12 Accumulator level reaches 56%, THEN CLOSE CV-31445, "12 ACCUM M-U" using control board switch.**

Standard:

**CLOSES CV-31445 when #12 Accumulator level on 1LI-934, 1LI-935, or ERCS is between 56% and 58%.**

Comment:

---

9 Performance step:

SAT/UNSAT

**DIRECT** Independent Verification that CV-31445, "12 ACCUM M-U" is closed.

Standard:

**DIRECTS** Independent Verification that CV-31445, "12 ACCUM M-U" is closed.

Comment:

**CUE:** Report Independent Verification that valve CV-31445 is closed.

---



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

10 Performance step:

SAT/UNSAT

**ENSURE** the #12 SI Pump has run for a minimum of 15 minutes.

Standard:

**ENSURES** the #12 SI Pump has run for a minimum of 15 minutes.

Comment:

**CUE:** The #12 SI Pump has run for 20 minutes

---

11 Performance step:

**CRITICAL STEP**

SAT/UNSAT

**STOP** the 12 SI Pump and record the time.

Stop time: \_\_\_\_\_

Standard:

**Stops 12 SI Pump and records the time the pump was stopped.**

Comment:

---

12 Performance step:

SAT/UNSAT

**NOTIFY** the SI System Engineer of the completion of the #12 Accumulator fill in order to evaluate level adjustment frequency.

Standard:

**NOTIFIES** the SI System Engineer of the completion of the #12 Accumulator fill.

Comment:

**CUE:** The SI System Engineer has been notified of the completion of the procedure.

---

Terminating cue: **WHEN** the 12 SI Pump is stopped and the SI System Engineer has been notified of the completion of the #12 Accumulator fill.

## VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

**Initial Conditions:**

- Unit 1 is at 100% power
- SI system is aligned in normal at power condition
- #12 Accumulator level is at 22%

**Initiating Cues:**

- You are directed by the Shift Supervisor to raise level in #12 Accumulator with the 12 SI Pump in accordance with 1C18, "Engineered Safeguards System Unit 1", Section 5.4 to between 56% and 58%.
- A local operator is stationed at the 12 SI Pump in preparation for starting the pump.



JPM B.I.c RO

Copy 1

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Lineup RHR and Commence  
Phase II Cooldown using RHR PumpJob Performance Measure No: RO  
B.1.cK/A Reference: 005 A4.01 [3.6/3.]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

**Method of testing:**Simulated Performance ☐ Actual Performance ☒ Classroom ☐ Simulator ☒ Plant ☐**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

- Unit 1 RCS cooldown is in progress per C1.3, "Unit 1 Shutdown"
- RCS temperature is 335°F
- RCS pressure is 340 psig
- RCS boron concentration is 1235 ppm
- Unit 1 reactor has been shutdown for 12 hours for a refueling outage

Task Standard: RHR system is aligned for shutdown cooling and Phase II cooldown has commenced.

Required Materials: 1C15, "Residual Heat Removal System", Section 5.1, Rev 24

General References: 1C15, "Residual Heat Removal System", Rev 24

**Initiating Cues:**

The Shift Supervisor directs you to place RHR in service using the 12 RHR Pump per 1C15, "Residual Heat Removal System", Section 5.1 starting at step 5.1.25.

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 15 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>1</u>	Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
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**OPEN the RHR suction valves from the RCS:**

- **MV-32164, "LOOP A HOT LEG TO RHR" using control switch CS-46226**
- **MV-32165, "LOOP A HOT LEG TO RHR" using control switch CS-46228**
- **MV-32230, "LOOP B HOT LEG TO RHR" using control switch CS-46227**
- **MV-32231, "LOOP B HOT LEG TO RHR" using control switch CS-46229**

Standard:

**OPENS valves MV-32164, MV-32165, MV-32230, and MV-32231 using control switches.**

Comment:

**EVALUATOR NOTE:** Will get the following alarms when RHR is aligned to the RCS:

- **"11 RHR PUMP HI PRESS" [47016-0502]**
- **"12 RHR PUMP HI PRESS" [47016-0503]**

**These alarms are EXPECTED and come in at an RHR pressure of > 210 psig.**

---

<u>2</u>	Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
----------	--	-----------

---

**START the 12 RHR Pump and VERIFY normal discharge pressure as indicated on 1PI-629 is approximately 150 psi greater than RCS pressure.**

Standard:

**STARTS the 12 RHR Pump using control switch CS46185 and VERIFIES discharge pressure is approximately 150 psi greater than RCS pressure on 1PI-629.**

Comment:

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

3 Performance step:

SAT/UNSAT

After the RHR loop has recirculated for five minutes, sample for the proper boron concentration.  
[RHR  $C_B \geq (RCS C_B - 100 \text{ ppm})$  ]

Standard:

**CALLS** Auxiliary Building operator or chemist to obtain sample.

Comment:

**EVALUATOR NOTE:** Since the RCS boron concentration is 1235 ppm (per the Initial Conditions), any RHR boron concentration of  $> 1135$  ppm is acceptable ( $1235 - 100 = 1135$ ).

**CUES:**

- Five minutes have elapsed.
- When the applicant calls to obtain an RHR sample, state that the RHR sample is 1300 ppm boron.

---

4 Performance step: **CRITICAL STEP**

SAT/UNSAT

With 1HC-626A in "MANUAL", use the manual pot to OPEN CV-31237, "11/12 RHR HX BYPASS FLOW", to 30% as indicated by the controller output meter.

Standard:

**OPENS** CV-31237 with controller 1HC-626A in "MANUAL" to 30%.

Comment:

---



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>5</u>	Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
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---

**CLOSE the RHR HX outlet flow control valves by adjusting their manual controllers:**

- **CV-31235, "11 RHR HX RC OUTLET FLOW" (1HC-624)**
- **CV-31236, "12 RHR HX RC OUTLET FLOW" (1HC-625)**

Standard:

**CLOSES the RHR HX outlet flow control valves CV-31235 and CV-31236 by adjusting their manual controllers 1HC-624 and 1HC-624.**

Comment:

**CUE: After this step is completed, if applicant asks if outage schedule directs that SP 1370, "Cycling of RHR Heat Exchange Outlet Control Valves" be performed, tell applicant that it was completed by another operator.**

---

<u>6</u>	Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
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---

**OPEN MV-32066, "RHR TO RC LOOP B COLD LEG" using control switch CS-46225.**

Standard:

**OPENS MV-32066, "RHR TO RC LOOP B COLD LEG" using control switch CS-46225.**

Comment:

**EVALUATOR NOTE: When MV-32066 is opened, will see flow on "12 RHR FLOW TO RCS" flow indicator (1FI-626).**

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>7</u> Performance step:	SAT/UNSAT
----------------------------	-----------

---

Using 1HC-626A, **READJUST** CV-31237, "11/12 RHR HX BYPASS FLOW" in "MANUAL" until a loop flow of 2000 gpm is indicated on 1FI-626.

Standard:

Uses 1HC-626A to **READJUST** CV-31237 in "MANUAL" until a loop flow of 2000 gpm is indicated on 1FI-626.

Comment:

---

<u>8</u> Performance step:	SAT/UNSAT
----------------------------	-----------

---

**SET** CV-31237, "11/12 RHR HX BYPASS FLOW" controller 1HC-626A automatic setpoint at approximately 33% to zero the deviation and place the controller in "AUTO".

Standard:

**REMOVES** deviation with auto dial and then **PLACES** 1HC-626A in "AUTO".

Comment:

---

<u>9</u> Performance step:	<b>CRITICAL STEP</b>	SAT/UNSAT
----------------------------	----------------------	-----------

---

**OPEN** both RHR HX outlet flow control valves 5% by adjusting the manual controller to 95% on the output meter:

- **CV-31235, "11 RHR HX RC OUTLET FLOW" (1HC-624)**
- **CV-31236, "12 RHR HX RC OUTLET FLOW" (1HC-625)**

Standard:

**OPENS** CV-31235 and CV-31236 using 1HC-624 and 1HC-625 to 95% on output meters.

Comment:

---

Terminating cue:	<b>WHEN</b> the RHR HX outlet flow control valves CV-31235 and CV-31236 are adjusted open.
------------------	--

---

## VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

**Initial Conditions:**

- Unit 1 RCS cooldown is in progress per C1.3, "Unit 1 Shutdown"
- RCS temperature is 335°F
- RCS pressure is 340 psig
- RCS boron concentration is 1235 ppm
- Unit 1 reactor has been shutdown for 12 hours for a refueling outage

**Initiating Cues:**

The Shift Supervisor directs you to place RHR in service using the 12 RHR Pump per 1C15, "Residual Heat Removal System", Section 5.1 starting at step 5.1.25.



---

JPM B.1.d RO

copy 1

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Perform "Quarterly Turbine Stop,  
Governor, and Intercept Valve Test"  
per SP 1054Job Performance Measure No: RO  
B.1.dK/A Reference: 045 A4.01 [3.1/2.9]  
045 A4.06 [2.8/2.7]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

**Method of testing:**Simulated Performance ☐ Actual Performance ☒ Classroom ☐ Simulator ☒ Plant ☐**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

Unit 1 is at 250 MW

Task Standard: Sections 7.1, 7.2, and 7.3 of SP 1054, "Quarterly Turbine Stop, Governor and Intercept Valve Test" completed satisfactorily.

Required Materials: SP 1054, "Quarterly Turbine Stop, Governor and Intercept Valve Test", Sections 7.1, 7.2, and 7.3, Rev 24

General References: SP 1054, "Quarterly Turbine Stop, Governor and Intercept Valve Test", Rev 24

**Initiating Cues:**

- You are directed by the Shift Supervisor to perform Sections 7.1, 7.2, and 7.3 of SP 1054, "Quarterly Turbine Stop, Governor and Intercept Valve Test".
- The System Load Dispatcher has been notified that SP 1054 is about to commence.
- All Prerequisites and Initial Conditions for performing SP 1054 have been met.
- Two local operators are stationed at the Unit 1 turbine with communications in preparation for performing SP 1054.

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 25 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

1 Performance step: **CRITICAL STEP** SAT/UNSAT

**PLACE** control system in **IMP IN** on Panel 48001, U1 E-H CONT STA.

Standard:

**EHC is in IMP IN.**

Comment:

---

2 Performance step: SAT/UNSAT

**INITIATE** a quick plot (Quick Plot SP1054L) with the following ERCS points, and a one(1) second update rate:

- 1P2007A - 1 TURB MS AFTER STOP VLV SV-1P (600 TO 900 psi)
- 1Y0392D - 1 TURB LEFT STOP VLV CL
- 1QO340A - 1 GEN GROSS MW

Standard:

**INITIATES** a quick plot for the points identified above.

Comment:

**EVALUATOR NOTES:** - This is the first step in the section to test the Left Stop-Control Valve Assembly (CV-31182).  
- A seven (7) minute span on the quick plot computer screen corresponds to a 1 sec update rate.

---

3 Performance step: SAT/UNSAT

**STATION** an Outplant Operator at the left stop control valve assembly to check that the movement of the valves are smooth and without abnormalities.

Standard:

**VERIFIES** that a local operator is stationed at the turbine to check the valves during the test.

Comment:

**CUE:** A local operator is stationed at the turbine valves to monitor the valves for the test.

---



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>4</u> Performance step:	SAT/UNSAT
----------------------------	-----------

---

**CHECK** the following:

- **"SV-1 CLOSED"** indicating light is NOT LIT
- **"SV-1 OPEN"** indicating light is LIT
- Annunciator 47007-0603, **"TURBINE LEFT STOP VALVE CLOSED"** is NOT LIT

Standard:

**VERIFIES** proper indications.

Comment:

---

<u>5</u> Performance step:	SAT/UNSAT
----------------------------	-----------

---

**RECORD** the following valve indications, as indicated on 48002, U1 E-H TURB INDICATION:

- (CV-31184) C-1: \_\_\_\_\_ %
- (CV-31185) C-2: \_\_\_\_\_ %
- (CV-31186) C-3: \_\_\_\_\_ %
- (CV-31187) C-4: \_\_\_\_\_ %

Standard:

**RECORDS** the turbine control valve "% open" indications.

Comment:

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

7 Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
--	-----------

---

**DEPRESS** and **HOLD** the "CLOSE SV-1" pushbutton on 48001, U1 E-H CONT STA, at Valve Test Left section.

**CHECK** the following:

- **CHECK** to verify that the quick plot shows a momentary decrease in steam pressure >50 psi after stop valve SV-1 CLOSSES.
- "SV-1 CLOSED" indicating light is LIT.
- "SV-1 OPEN" indicating light is NOT LIT.
- "CV-1 CLOSED" indicating light is LIT.
- "CV-1 OPEN" indicating light is NOT LIT.
- "CV-3 CLOSED" indicating light is LIT.
- "CV-3 OPEN" indicating light is NOT LIT.
- "C-1 Valve position Indicator reads CLOSED.
- "C-3 Valve position Indicator reads CLOSED.
- Annunciator 47007-0603, "TURB LEFT STOP VALVE CLOSED" is LIT.
- **CHECK** with local operator to verify that he observed CV-31182, "1 Stop Valve Left Control Valve" stroke closed.

Standard:

**DEPRESSES** and **HOLDS** the "CLOSE SV-1" pushbutton and **VERIFIES** proper Indications.

Comment:

**CUE:** **WHEN** asked, state that CV-31182, "1 Stop Valve Left Control Valve" has been locally observed to stroke closed.

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>8</u> Performance step:	SAT/UNSAT
----------------------------	-----------

---

CHECK EITHER OF the following:

- "SV-1 OPEN" indicating light is NOT LIT, OR
- CHECK with local operator to verify that SV-1 is closed.

Standard:

VERIFIES proper SV-1 indication.

Comment:

**CUE:** IF asked, state that SV-1 has been locally verified to be closed.

---

<u>9</u> Performance step:	SAT/UNSAT
----------------------------	-----------

---

CHECK EITHER OF the following:

- "CV-1 OPEN" indicating light is NOT LIT, OR
- CHECK with local operator to verify that CV-1 is closed.

Standard:

VERIFIES proper CV-1 indication.

Comment:

**CUE:** IF asked, state that CV-1 has been locally verified to be closed.

---

<u>10</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

---

CHECK EITHER OF the following:

- "CV-3 OPEN" indicating light is NOT LIT, OR
- CHECK with local operator to verify that CV-3 is closed.

Standard:

VERIFIES proper CV-3 indication.

Comment:

**CUE:** IF asked, state that CV-3 has been locally verified to be closed.

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>11</u> Performance step:	<b>CRITICAL STEP</b>	SAT/UNSAT
-----------------------------	----------------------	-----------

---

**RELEASE "CLOSE SV-1" pushbutton and check the following:**

- Check "SV-1 OPEN" indicating light is LIT.
- Check "SV-1 CLOSED" indicating light is NOT LIT.

Standard:

**RELEASES "CLOSE SV-1" pushbutton and VERIFIES proper SV-1 indications.**

Comment:

---

<u>12</u> Performance step:	<b>CRITICAL STEP</b>	SAT/UNSAT
-----------------------------	----------------------	-----------

---

**DEPRESS and HOLD the "OPEN SV-1" pushbutton until the "OPEN SV-1" backlight is NOT LIT.**

**CHECK the following:**

- CV-1, CV-2, CV-3 and CV-4 all return to their pre-test position (as recorded in previous step).
- Annunciator 47007-0603, "TURBINE LEFT STOP VALVE CLOSED" is NOT LIT.

Standard:

**DEPRESSES and HOLDS the "OPEN SV-1" pushbutton until the "OPEN SV-1" backlight is NOT LIT and VERIFIES proper indications.**

Comment:

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>13</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

---

**STATION** Outplant Operators at the No. 1A Left Reheat Stop and Intercept Valves to check that movement of the valves is smooth and without abnormalities.

Standard:

**VERIFIES** that local operators are stationed at the turbine to check the valves during the test.

Comment:

**EVALUATOR NOTE:** This is the first step in the section to test the 1A Reheat and Intercept Valves.

**CUE:** Local operators are stationed at the No. 1A Left Reheat Stop and Intercept Valves to monitor the valves for the test.

---

<u>14</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

---

**CHECK** the following:

- "44331, CV-31166, 1A REHEATER STOP VALVE, OPEN" status light is LIT.
- "44335, CV-31167, 1A REHEATER INTERCEPT VALVE, OPEN" status light is LIT.

**CHECK** the following on 48001, U-1 E-H CONT STA:

- "1RL OPEN" status light is LIT.
- "1IL OPEN" status light is LIT.

Standard:

**VERIFIES** proper indications for 1A Reheater Stop and Intercept Valves.

Comment:

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>15</u>	Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
-----------	--	-----------

---

**DEPRESS** and **HOLD** the "TEST 1IRL" pushbutton on 48001, U1 E-H CONT STA.

**CHECK** the following:

- "44331, CV-31166, 1A REHEATER STOP VALVE, CLOSED" status light is LIT.
- "44331, CV-31166, OPEN" status light is NOT LIT.
- **CHECKS** with local operator to verify that he observed CV-31166 stroke **CLOSED**.
- "44335, CV-31167, 1A REHEATER INTERCEPT VALVE,CLOSED" status light is LIT.
- "44335, CV-31167, OPEN" status light is NOT LIT.
- **CHECKS** with local operator to verify he observed CV-31167 stroke **CLOSED**.

**CHECK** the following on 48001, U1 E-H CONT STA:

- "1RL CLOSED" status light is LIT.
- "1RL OPEN" status light is NOT LIT.
- "1IL CLOSED" status light is LIT.
- "1IL OPEN" status light is NOT LIT.

Standard:

**DEPRESSES** and **HOLDS** the "TEST 1IRL" pushbutton and **VERIFIES** proper indications.

Comment:

**CUES:** -       -       **WHEN** asked, state that CV-31166 has been locally observed to stroke closed.

                  -       **WHEN** asked, state that CV-31167 has been locally observed to stroke closed.

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>16</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

---

CHECK EITHER of the following:

- "44331, CV-31166, 1A REHEATER STOP VALVE, OPEN" status light is NOT LIT, OR
- CHECK with local operator to verify that CV-31166 is closed.

Standard:

VERIFIES proper CV-31166 indication.

Comment:

**CUE:** IF asked, state that CV-31166 has been locally verified to be closed.

---

<u>17</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

---

CHECK EITHER of the following:

- "44335, CV-31167, 1A REHEATER INTERCEPT VALVE, OPEN" status light is NOT LIT, OR
- CHECK with local operator to verify that CV-31167 is closed.

Standard:

VERIFIES proper CV-31167 indication.

Comment:

**CUE:** IF asked, state that CV-31167 has been locally verified to be closed.

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

18 Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
---	-----------

---

**RELEASE** the "TEST 1IRL" pushbutton.

**CHECK** the following:

- "44331, CV-31166, 1A REHEATER STOP VALVE, OPEN" status light is LIT.
- "44331, CV-31166, CLOSED" status light is NOT LIT.
- "44335, CV-31167, 1A REHEATER INTERCEPT VALVE, OPEN" status light is LIT.
- "44335, CV-31167, CLOSED" status light is NOT LIT.

**CHECK** the following on 48001, U1 E-H CONT STA:

- "1RL OPEN" status light is LIT.
- "1RL CLOSED" status light is NOT LIT.
- "1IL OPEN" status light is LIT.
- "1IL CLOSED" status light is NOT LIT.

Standard:

**RELEASES** "TEST 1IRL" pushbutton and **VERIFIES** proper Reheat and Intercept Valve indications.

Comment:

---

Terminating cue:	WHEN the test of the 1A Reheat Stop and Intercept Valves is complete. State that another operator will complete the surveillance test.
------------------	---

---



## VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

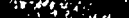
**Initial Conditions:**

**Unit 1 is at 250 MW**

**Initiating Cues:**

- **You are directed by the Shift Supervisor to perform Sections 7.1, 7.2, and 7.3 of SP 1054, “Quarterly Turbine Stop, Governor and Intercept Valve Test”.**
- **The System Load Dispatcher has been notified that SP 1054 is about to commence.**
- **All Prerequisites and Initial Conditions for performing SP 1054 have been met.**
- **Two local operators are stationed at the Unit 1 turbine with communications in preparation for performing SP 1054.**



	<p align="center"><b>QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST</b></p>	<p><b>NUMBER:</b></p> <p align="right"><b>SP 1054</b></p>
		<p align="right"><b>REV: 25</b></p>
		<p align="right"><b>Page 1 of 20</b></p>

TB, EH

**WO:** \_\_\_\_\_

RESULTS/COMMENTS	
Work Order Initiated: YES _____ NO _____ WO No. _____	

### Test Performance:

Performed By: \_\_\_\_\_  
(Signature or Initials)

Date: \_\_\_\_\_

### Additional Requirements:

NONE

Review of Acceptability:  
Acceptance Criteria Met? YES/NO Shift Supervisor: \_\_\_\_\_


SP Completion:  
Shift Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

SP Surveillance Schedule Satisfied. YES/NO Surv. Admin: \_\_\_\_\_

**Other Actions for Consideration:**

System Engineer Review: \_\_\_\_\_ Date: \_\_\_\_\_

O.C. REVIEW DATE: 6-19-02	OWNER:  M. Heller	EFFECTIVE DATE 6-19-02
------------------------------	-------------------------	---------------------------

	<b>QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST</b>	NUMBER:
		<b>SP 1054</b>
		REV: <b>25</b>
		<b>Page 2 of 20</b>

## 1.0 PURPOSE AND GENERAL DISCUSSION

### CONTINUOUS USE

- *Continuous use of procedure required.*
- *Read each step prior to performing.*
- *Mark off steps as they are completed.*
- *Procedure **SHALL** be at the work location.*

- 1.1 This procedure fulfills the annual functional test requirements of Table T.S.4.1-2A, Item 11, which demonstrates the operability of the turbine stop, control, reheat stop and intercept valves.

**This procedure performs an annual functional test to demonstrate the operability of the turbine stop, control, reheat stop and intercept valves.**

- 1.2 The intent of this procedure is to perform two (2) primary manipulations as follows:

- 1.2.1 Stroke all turbine steam control valves to verify they are free to move and also to loosen any accumulated debris that may hinder future operations.

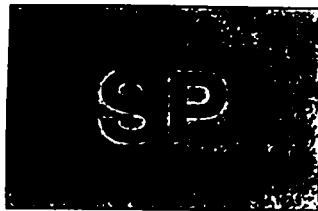
This is accomplished by either confirming each valve changes position visually or by observing CR remote limit switch indication.

(This portion of the test may be completed at reduced power per SP 1054 or prior to unit startup per 1C1.2)

- 1.2.2 Verify stop valve disks are functionally attached to the disk shaft.

This is accomplished by confirming a decrease in stop valve downstream pressure upon closure of the stop valve.

(This portion of the test **SHALL** be completed with the unit at reduced load per SP 1054 to allow confirmation of the stop valve pressure drop.)



# QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST

NUMBER:

SP 1054

REV: 25

Page 3 of 20

- 1.3 Both Steps 1.2.1 and 1.2.2 **SHALL** be completed at an interval consistent with WCAP 11525 as referenced in Technical Specifications.

Both Steps 1.2.1 and 1.2.2 **SHALL** be completed at an interval consistent with WCAP 11525.

To assure this step is achieved, SP 1054 is routinely scheduled for quarterly completion.


If extension beyond quarterly is desired, then the cover sheet should be filled out with the justification that WCAP 11525 is met by the System Engineer and the remaining steps N/A'ed. This extension will generally require rescheduling of SP 1054 to assure the maximum interval described as follows is not exceeded.

- 1.4 In no case **SHALL** the interval for either Step 1.2.1, or Step 1.2.2, exceed six (6) months as specified in WCAP 11525. Additionally, valve stroking per Step 1.2.1 **SHALL** be completed quarterly.

**NOTE:** A unit startup per 1C1.2 fulfills the stroking requirement as specified in Step 1.2.1, however Step 1.2.2, is not fulfilled during a unit startup.

- 1.5 Those steps marked with an asterisk (\*) must be completed satisfactorily in order for the test to be acceptable. IF any acceptance step is not met, THEN the Shift Supervisor **SHALL** be notified immediately.
- 1.6 Several steps in this procedure are required to be performed by Operations Personnel outside of the Control Room. These steps are identified by a "pound sign" (#).
- 1.7 Steps in this procedure that are not acceptance criteria (not asterisked) are to be observed and inconsistencies noted. If there are significant deviations or questions as to the operability, contact the Shift Supervisor or System Engineer for guidance.
- 1.8 **Acceptance Criteria - General**

In the event Acceptance Criteria cannot be met, refer to Ops. Manual Section G "SURVEILLANCE AND PERIODIC TEST PROGRAM" for additional guidance.

	<b>QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST</b>	NUMBER: <b>SP 1054</b>
		REV: <b>25</b>
		Page 4 of 20

## 1.9 Acceptance Criteria - Valves

1.9.1 Valves stroke CLOSED. (No valve stroke timing required)

1.9.2 IF a valve fails to CLOSE during valve stroking, THEN:

A. Contact the System Engineer

B. Issue a WO.

1.9.3 A Steam Pressure decrease of greater than 50 psi after each turbine stop valve closure, as indicated on Quick Plots (identified in this procedure), are used to check the valve closure. If decrease is not greater than 50 psi, notify system engineer immediately.

## 2.0 REFERENCES

2.1 Tech Specs: Table T.S.4.1-2A, Item 11 Minimum Frequencies for Equipment Tests  
(~~For WO# 1725, Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency~~)

2.2 Schematic Diagrams:

2.2.1 NE-40004-31, Interceptor Valve and Reheat Stop Valve

2.2.2 NE-40004-31.1, MSR Steam Outlet Stop Valves Indicating Lights/LP Turbine Reheat Steam Inlet Intercept Valves Indicating Lights

2.2.3 NE-40004-32, Reheater Control Limit Switches

2.2.4 NE-40004-33, Stop Valve and Governor Valve Indication and Test

2.2.5 NE-40011-79, BOP Annunciator Schematic

2.3 Control Board Panel E-1 Drawings:


2.3.1 NF-39752-2: Unit 1 Panel Arrangement

2.3.2 NH-39796: Nameplate Engraving

2.4 Operations Manual:

2.4.1 1C23, Turbine Control System

2.4.2 C22.9, Turbine Limits and Precautions

	<b>QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST</b>	NUMBER:
		<b>SP 1054</b>
		REV: <b>25</b>
		<b>Page 5 of 20</b>

## 2.5 Logic Diagrams:

- 2.5.1 NF-40777-2, Turbine-Generator System Unit 1.
- 2.5.2 NF-40777-3, Turbine-Generator System Unit 1.
- 2.5.3 NF-40777-15, Turbine-Generator System Unit 1.

## 3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 IF any problems or abnormalities are experienced during this test, THEN the Shift Supervisor **SHALL** be notified immediately in order to commence prompt remedial action. Refer to 1C23, Turbine Control System, AOP's for guidance.
- 3.2 Only one matched MSR (1A, 2A, 1B or 2B) combination of reheat stop and reheat intercept valve set may be tested at any one time.
- 3.3 Changing bulbs on the turbine eh control station is a high risk evolution. If bulbs need to be replaced, think FME. Shorting out the wrong contacts in the bulb bases will trip the turbine.

## 4.0 PERSONNEL AND SPECIAL EQUIPMENT REQUIREMENTS

### 4.1 Suggested Personnel

- 4.1.1 One (1) Control Room Operator - to perform Control Room operations.
- 4.1.2 Two (2) Outplant Operators - to check valve movements and report any other problems or abnormalities.

### 4.2 Special Equipment

NONE

## 5.0 SPECIAL CONSIDERATIONS

Be advised to expect Annunciators **47013-0309**, TURBINE INITIATED PARTIAL REACTOR TRIP, **47007-0603**, TURBINE LEFT STOP VALVE CLOSED, & **47007-0604**, TURBINE RIGHT STOP VALVE CLOSED during the SP testing cycles.





## QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST

**NUMBER:**

**SP 1054**

REV: 25

Page 6 of 20

## 6.0 PREREQUISITES AND INITIAL CONDITIONS

- 6.1 **Conduct** a pre-job brief per PINGP 1112.
- 6.2 **Establish** communications between the Control Room and the Outplant Operators at the turbine.
- 6.3 Turbine load **SHALL** be  $\leq 260$  MW.
- 6.4 ERCS available for Quick Plots "SP1054L" and "SP1054R."
- 6.5 **Notify** System Dispatcher that this test is about to commence.

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## 7.0 PROCEDURE

## NOTE

**Unless otherwise indicated, all actions should be performed at Control Panel E-1.**

- 7.1 Place control system in IMP IN on Panel 48001, U1 E-H CONT STA.**
- 7.2 Left Stop-Control Valve Assembly Test (CV-31182)**
- 7.2.1 Initiate a quick plot (Quick Plot SP1054L) with the following ERCS points, and a one (1) second update rate:**
- **1P2007A - 1 TURB MS AFTER STOP VLV SV-1P (600 to 900 psi)**
  - **1Y0392D - 1 TURB LEFT STOP VLV CL**
  - **1Q0340A - 1 GEN GROSS MW**
- # 7.2.2 Station an Outplant Operator at the left stop control valve assembly to check that the movement of the valves are smooth and without abnormalities.**

	<b>QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST</b>	NUMBER:
		SP 1054
		REV: 25
		Page 7 of 20

### 7.2.3 Check the following:

<b>NOTE:</b>	Valve position indicating lights are on panel 48001, U1 E-H CONT STA.
--------------	---

<b>CAUTION:</b>	CHANGING BULBS ON THE TURBINE EH CONTROL STATION IS A HIGH RISK EVOLUTION. IF BULBS NEED TO BE REPLACED, THINK FME. SHORTING OUT THE WRONG CONTACTS IN THE BULB BASES WILL TRIP THE TURBINE.
-----------------	--

- SV-1 CLOSED indicating light is NOT LIT. \_\_\_\_\_
- SV-1 OPEN indicating light is LIT. \_\_\_\_\_
- 47007-0603, TURBINE LEFT STOP VALVE CLOSED annunciator is NOT LIT. \_\_\_\_\_

### 7.2.4 Record the following valve positions, as indicated on 48002, U1 E-H TURB INDICATION:

(CV-31184)	C-1:	_____
		%
(CV-31185)	C-2:	_____
		%
(CV-31186)	C-3:	_____
		%
(CV-31187)	C-4:	_____
		%

<b>NOTE:</b>	The CLOSE SV-1 pushbutton must be held until CV-1 and CV-3 have CLOSED. If SV-1 does not CLOSE, it may indicate that CV-1 or CV-3 have not adequately CLOSED.
--------------	---

### 7.2.5 Depress and hold the CLOSE SV-1 pushbutton on 48001, U1 E-H CONT STA, at Valve Test Left section. \_\_\_\_\_



# **QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST**

NUMBER:

**SP 1054**REV: **25**

Page 8 of 20

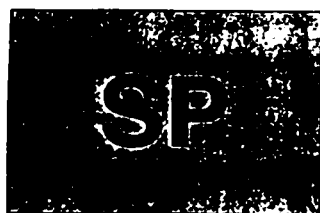
- \* 7.2.6 Check that the quick plot shows a momentary decrease in steam pressure greater than 50 psi after the stop valve CLOSES.

- 7.2.7 Check the following:

## **NOTE**

Valve position indicating lights are on panel 48001,  
UI E-H CONT STA.

- **SV-1 CLOSED** indicating light is LIT.
  - **SV-1 OPEN** indicating light is NOT LIT.
  - **CV-1 CLOSED** indicating light is LIT.
  - **CV-1 OPEN** indicating light is NOT LIT.
  - **CV-3 CLOSED** indicating light is LIT.
  - **CV-3 OPEN** indicating light is NOT LIT.
  - **C-1**, Valve position indicator, reads **CLOSED**.
  - **C-3**, Valve position indicator, reads **CLOSED**.
  - **47007-0603**, TURBINE LEFT STOP VALVE CLOSED annunciator is LIT.
  - # • Locally observe **CV-31182**, 1 TURB STOP VLV LEFT CV, stroked **CLOSED**.
- \* 7.2.8 Check either **SV-1 OPEN** indicating light is NOT LIT or locally check SV-1 is CLOSED.
- \* 7.2.9 Check either **CV-1 OPEN** indicating light is NOT LIT or locally check CV-1 is CLOSED.
- \* 7.2.10 Check either **CV-3 OPEN** indicating light is NOT LIT or locally check CV-3 is CLOSED.



## QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST

NUMBER:

**SP 1054**REV: **25**

Page 9 of 20

NOTE

Releasing pushbutton CLOSE SV-1 should OPEN SV-1. If SV-1 does not OPEN, the D/P across SV-1 may require OPENING the manual bypass valves.

**7.2.11 Release CLOSE SV-1 pushbutton and check the following:**

- Check SV-1 OPEN indicating light is LIT. \_\_\_\_\_
- Check SV-1 CLOSED indicating light is NOT LIT. \_\_\_\_\_

**7.2.12 Depress and hold the OPEN SV-1 pushbutton until the OPEN SV-1 backlight is NOT LIT.** \_\_\_\_\_

**7.2.13 Check the following:**

- CV-1, CV-2, CV-3 and CV-4 all return to their pre-test position (as recorded in Step 7.2.4). \_\_\_\_\_
- 47007-0603, TURBINE LEFT STOP VALVE CLOSED annunciator is NOT LIT. \_\_\_\_\_

### **7.3 1A Reheat Stop and Intercept Valve Test**

**# 7.3.1 Station Outplant Operators at the 1A Left Reheat Stop and Intercept Valves to check that movement of the valves is smooth and without abnormalities.** \_\_\_\_\_

**7.3.2 Check the following:**

- 44331, CV-31166, 1A REHEATER STOP VALVE, OPEN status light is LIT. \_\_\_\_\_
- 44335, CV-31167, 1A REHEATER INTERCEPT VALVE, OPEN status light is LIT. \_\_\_\_\_

**7.3.3 Check the following on 48001, U1 E-H CONT STA:**

- 1RL OPEN status light is LIT. \_\_\_\_\_
- 1IL OPEN status light is LIT. \_\_\_\_\_

SP

**QUARTERLY TURBINE STOP,  
GOVERNOR AND INTERCEPT  
VALVE TEST**

NUMBER:

**SP 1054**REV: **25**

Page 10 of 20

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Only one combination reheat stop and reheat intercept valves may be tested at any one time.

**7.3.4 Press and hold** (through Step 7.3.9) the **TEST 1IRL** pushbutton on **48001**, U1 E-H CONT STA.

**7.3.5 Check** the following:

- **44331, CV-31166, 1A REHEATER STOP VALVE, CLOSED** status light is LIT.
- # • **44331, CV-31166, OPEN** status light is NOT LIT.
- Locally observe **CV-31166**, stroked **CLOSED**.
- **44335, CV-31167, 1A REHEATER INTERCEPT VALVE, CLOSED** status light is LIT.
- # • **44335, CV-31167, OPEN** status light is NOT LIT.
- Locally observe **CV-31167**, stroked **CLOSED**.

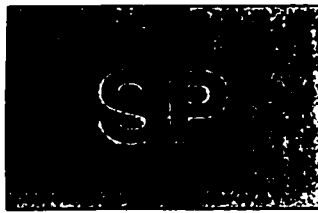
**7.3.6 Check** the following on **48001**, U1 E-H CONT STA:

- **1RL CLOSED** status light is LIT.
- **1RL OPEN** status light is NOT LIT.
- **1IL CLOSED** status light is LIT.
- **1IL OPEN** status light is NOT LIT.

\* **7.3.7 Check** either **44331, CV-31166, 1A REHEATER STOP VALVE, OPEN** status light is NOT LIT or locally check **CV-31166** is CLOSED.

\* **7.3.8 Check** either **44335, CV-31167, 1A REHEATER INTERCEPT VALVE, OPEN** status light is NOT LIT or locally check **CV-31167** is CLOSED.

**7.3.9 Release** the **TEST 1IRL** pushbutton.

**QUARTERLY TURBINE STOP,  
GOVERNOR AND INTERCEPT  
VALVE TEST**

NUMBER:

**SP 1054**REV: **25**

Page 11 of 20

**7.3.10 Check the following:**

- **44331, CV-31166, 1A REHEATER STOP VALVE, OPEN** status light is LIT. \_\_\_\_\_
- **44331, CV-31166, CLOSED** status light is NOT LIT. \_\_\_\_\_
- **44335, CV-31167, 1A REHEATER INTERCEPT VALVE, OPEN** status light is LIT. \_\_\_\_\_
- **44335, CV-31167, CLOSED** status light is NOT LIT. \_\_\_\_\_

**7.3.11 Check the following on 48001, U1 E-H CONT STA:**

- **1RL OPEN** status light is LIT. \_\_\_\_\_
- **1RL CLOSED** status light is NOT LIT. \_\_\_\_\_
- **1IL OPEN** status light is LIT. \_\_\_\_\_
- **1IL CLOSED** status light is NOT LIT. \_\_\_\_\_

**7.4 2A Reheat Stop and Intercept Valve Test**

- # 7.4.1 Station Outplant Operators at the 2A Left Reheat Stop and Intercept Valves to check that movement of the valves is smooth and without abnormalities.** \_\_\_\_\_

**7.4.2 Check the following:**

- **44332, CV-31170, 2A REHEATER STOP VALVE, OPEN** status light is LIT. \_\_\_\_\_
- **44336, CV-31171, 2A REHEATER INTERCEPT VALVE, OPEN** status light is LIT. \_\_\_\_\_

**7.4.3 Check the following on 48001, U1 E-H CONT STA:**

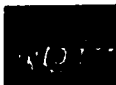
- **2RL OPEN** status light is LIT. \_\_\_\_\_
- **2IL OPEN** status light is LIT. \_\_\_\_\_

**QUARTERLY TURBINE STOP,  
GOVERNOR AND INTERCEPT  
VALVE TEST**

NUMBER:

**SP 1054**REV: **25**

Page 12 of 20



Only one combination reheat stop and reheat intercept valves may be tested at any one time.

**7.4.4 Press and hold** (through Step 7.4.9) the **TEST 2IRL** pushbutton on **48001, U1 E-H CONT STA.**

**7.4.5 Check** the following:

- **44332, CV-31170, 2A REHEATER STOP VALVE, CLOSED** status light is LIT.
- # • **44332, CV-31170, OPEN** status light is NOT LIT.
- Locally observe **CV-31170**, stroked **CLOSED**.
- **44336, CV-31171, 2A REHEATER INTERCEPT VALVE, CLOSED** status light is LIT.
- # • **44336, CV-31171, OPEN** status light is NOT LIT.
- Locally observe **CV-31171**, stroked **CLOSED**.


**7.4.6 Check** the following on **48001, U1 E-H CONT STA:**

- **2RL CLOSED** status light is LIT.
- **2RL OPEN** status light is NOT LIT.
- **2IL CLOSED** status light is LIT.
- **2IL OPEN** status light is NOT LIT.

\* **7.4.7 Check** either **44332, CV-31170, 2A REHEATER STOP VALVE, OPEN** status light is NOT LIT or locally **check CV-31170** is **CLOSED**.

\* **7.4.8 Check** either **44336, CV-31171, 2A REHEATER INTERCEPT VALVE, OPEN** status light is NOT LIT or locally **check CV-31171** is **CLOSED**.

**7.4.9 Release** the **TEST 2IRL** pushbutton.

	<b>QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST</b>	NUMBER:
		<b>SP 1054</b>
		REV: <b>25</b>
		Page 13 of 20

**7.4.10 Check the following:**

- **44332, CV-31170, 2A REHEATER STOP VALVE, OPEN** status light is LIT. \_\_\_\_\_
- **44332, CV-31170, 2A REHEATER STOP VALVE, CLOSED** status light is NOT LIT. \_\_\_\_\_
- **44336, CV-31171, 2A REHEATER INTERCEPT VALVE, OPEN** status light is LIT. \_\_\_\_\_
- **44336, CV-31171 2A REHEATER INTERCEPT VALVE, CLOSED** status light is NOT LIT. \_\_\_\_\_

**7.4.11 Check the following on 48001, U1 E-H CONT STA:**

- **2RL OPEN** status light is LIT. \_\_\_\_\_
- **2RL CLOSED** status light is NOT LIT. \_\_\_\_\_
- **2IL OPEN** status light is LIT. \_\_\_\_\_
- **2IL CLOSED** status light is NOT LIT. \_\_\_\_\_

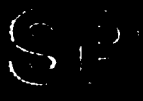
**7.5 Right Stop-Control Valve Assembly Test (CV-31183)**

**7.5.1 Initiate a quick plot (Quick Plot SP1054R) of the following ERCS points, and a one (1) second update rate:**

- **1P2008A - 1 TURB MS AFTER STOP VLV SV-2P(600 to 900 psi)**
- **1Y0393D - 1 TURB RIGHT STOP VLV CL**
- **1Q0340A - 1 GEN GROSS MW** \_\_\_\_\_

**# 7.5.2 Station Outplant Operators at the right stop-control valve assembly to check that the movement of the valves are smooth and without abnormalities.** \_\_\_\_\_



	<b>QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST</b>	NUMBER:
		<b>SP 1054</b>
		REV: 25
		Page 14 of 20

### 7.5.3 Check the following:

<b>NOTE</b>	Valve position indicating lights are on panel 48001, U1 E-H CONT STA.
-------------	---

- **SV-2 CLOSED** indicating light is NOT LIT. \_\_\_\_\_
- **SV-2 OPEN** indicating light is LIT. \_\_\_\_\_
- **47007-0604, TURBINE RIGHT STOP VALVE**  
CLOSED annunciator is NOT LIT. \_\_\_\_\_

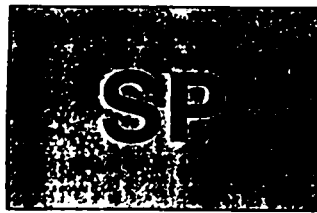
### 7.5.4 Record the following valve positions, as indicated on 48002, U1 E-H TURB INDICATION:

(CV-31184)	C-1:	_____ %
(CV-31185)	C-2:	_____ %
(CV-31186)	C-3:	_____ %
(CV-31187)	C-4:	_____ %

<b>NOTE</b>	The CLOSE SV-2 pushbutton must be held until CV-2 and CV-4 have fully CLOSED. If SV-2 does not CLOSE, it may indicate that CV-2 or CV-4 have not adequately CLOSED.
-------------	---

### 7.5.5 Depress and hold the CLOSE SV-2 pushbutton on 48001, U1 E-H CONT STA, at Valve Test Right section. \_\_\_\_\_

- \* 7.5.6 Check that the quick plot shows a momentary decrease in steam pressure greater than 50 psi after the stop valve CLOSES. \_\_\_\_\_



# QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST

NUMBER:

SP 1054

REV: 25


Page 15 of 20

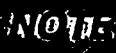
## 7.5.7 Check the following:

NOTE

Valve position indicating lights are on panel 48001,  
U1 E-H CONT STA.

- SV-2 CLOSED indicating light is LIT. \_\_\_\_\_
- SV-2 OPEN indicating light is NOT LIT. \_\_\_\_\_
- CV-2 CLOSED indicating light is LIT. \_\_\_\_\_
- CV-2 OPEN indicating light is NOT LIT. \_\_\_\_\_
- CV-4 CLOSED indicating light is LIT. \_\_\_\_\_
- CV-4 OPEN indicating light is NOT LIT. \_\_\_\_\_
- C-2, Valve position indicator, reads CLOSED. \_\_\_\_\_
- C-4, Valve position indicator, reads CLOSED. \_\_\_\_\_
- 47007-0604, TURBINE RIGHT STOP VALVE  
CLOSED annunciator is LIT. \_\_\_\_\_
- # • Locally observe CV-31183, TURBINE RIGHT STOP  
VALVE, stroked CLOSED. \_\_\_\_\_
- \* 7.5.8 Check either SV-2 OPEN indicating light is NOT LIT or  
locally check SV-2 is CLOSED. \_\_\_\_\_
- \* 7.5.9 Check either CV-2 OPEN indicating light is NOT LIT or  
locally check CV-2 is CLOSED. \_\_\_\_\_
- \* 7.5.10 Check either CV-4 OPEN indicating light is NOT LIT or  
locally check CV-4 is CLOSED. \_\_\_\_\_

	<b>QUARTERLY TURBINE STOP, GOVENOR AND INTERCEPT VALVE TEST</b>	<b>NUMBER:</b>
		<b>SP 1054</b>
		<b>REV: 25</b>
		<b>Page 16 of 20</b>

	<b>Releasing pushbutton CLOSE SV-2 should OPEN SV-2. If SV-2 does not OPEN, the D/P across SV-2 may require OPENING the manual bypass valves.</b>
---	---

**7.5.11 Release pushbutton CLOSE SV-2 and check the following:**

- Check SV-2 OPEN indicating light is LIT. \_\_\_\_\_
- Check SV-2 CLOSED indicating light is NOT LIT. \_\_\_\_\_

**7.5.12 Depress and hold the OPEN SV-2 pushbutton until the OPEN SV-2 backlight is NOT LIT.** \_\_\_\_\_

**7.5.13 Check the following:**

- CV-1, CV-2, CV-3 and CV-4 all return to their pre-test position (as recorded in Step 7.5.4). \_\_\_\_\_
- 47007-0604, TURBINE RIGHT STOP VALVE CLOSED annunciator is NOT LIT. \_\_\_\_\_

## **7.6 1B Reheat Stop and Intercept Valve Test**

**# 7.6.1 Station Outplant Operators at the 1B Right Reheat Stop and Intercept Valves to check that the movement of the valves are smooth and without abnormalities.** \_\_\_\_\_

**7.6.2 Check the following:**

- 44333, CV-31168, 1B REHEATER STOP VALVE, OPEN status light is LIT. \_\_\_\_\_
- 44337, CV-31169, 1B REHEATER INTERCEPT VALVE, OPEN status light is LIT. \_\_\_\_\_



# QUARTERLY TURBINE STOP, GOVERNOR AND INTERCEPT VALVE TEST

NUMBER:

SP 1054

REV: 25

Page 17 of 20

7.6.3 Check the following on 48001, U1 E-H CONT STA:

- 1RR OPEN status light is LIT.
- 1IR OPEN status light is LIT.

## NOTE

Only one combination reheat stop and reheat intercept valves may be tested at any one time.

7.6.4 Press and hold (through Step 7.6.9) the TEST 1IRR pushbutton on 48001, U1 E-H CONT STA.

7.6.5 Check the following:

- 44333, CV-31168, 1B REHEATER STOP VALVE, CLOSED status light is LIT.
- 44333, CV-31168, OPEN status light is NOT LIT.
- # • Locally observe CV-31168, stroked CLOSED.
- 44337, CV-31169, 1B REHEATER INTERCEPT VALVE, CLOSED status light is LIT.
- 44337, CV-31169, OPEN status light is NOT LIT.
- # • Locally observe CV-31169, stroked CLOSED.

7.6.6 Check the following on 48001, U1 E-H CONT STA:

- 1RR CLOSED status light is LIT.
- 1RR OPEN status light is NOT LIT.
- 1IR CLOSED status light is LIT.
- 1IR OPEN status light is NOT LIT.

\* 7.6.7 Check either 44333, CV-31168, 1B REHEATER STOP VALVE, OPEN status light is NOT LIT or locally check CV-31168 is CLOSED.

**QUARTERLY TURBINE STOP,  
GOVERNOR AND INTERCEPT  
VALVE TEST**

NUMBER:

**SP 1054**REV: **25**

Page 18 of 20

- \* 7.6.8 Check either 44337, CV-31169, 1B REHEATER INTERCEPT VALVE, OPEN status light is NOT LIT or locally check CV-31169 is CLOSED. \_\_\_\_\_

- 7.6.9 Release the TEST 1IRR pushbutton. \_\_\_\_\_

- 7.6.10 Check the following:

- 44333, CV-31168, 1B REHEATER STOP VALVE, OPEN status light is LIT. \_\_\_\_\_
- 44333, CV-31168, 1B REHEATER STOP VALVE, CLOSED status light is NOT LIT. \_\_\_\_\_
- 44337, CV-31169, 1B REHEATER INTERCEPT VALVE, OPEN status light is LIT. \_\_\_\_\_
- 44337, CV-31169, 1B REHEATER INTERCEPT VALVE, CLOSED status light is NOT LIT. \_\_\_\_\_

- 7.6.11 Check the following on 48001, U1 E-H CONT STA:

- 1RR OPEN status light is LIT. \_\_\_\_\_
- 1RR CLOSED status light is NOT LIT. \_\_\_\_\_
- 1IR OPEN status light is LIT. \_\_\_\_\_
- 1IR CLOSED status light is NOT LIT. \_\_\_\_\_

**7.7 2B Reheat Stop and Intercept Valve Test**

- # 7.7.1 Station Outplant Operators at the 2B Right Reheat Stop and Intercept Valves to check that movement of the valves is smooth and without abnormalities. \_\_\_\_\_

- 7.7.2 Check the following:

- 44334, CV-31172, 2B REHEATER STOP VALVE, OPEN status light is LIT. \_\_\_\_\_
- 44338, CV-31173, 2B REHEATER INTERCEPT VALVE, OPEN status light is LIT. \_\_\_\_\_

---

520/20 B.1 e

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Manual Start Of D1 Diesel Generator  
From Control Room

Job Performance Measure No: SRO/ROB.1.e

K/A Reference: 064A4.06 [3.9/3.9]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

**Method of testing:**Simulated Performance \_\_ Actual Performance X Classroom \_\_ Simulator X Plant \_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

- D1 diesel generator has been out of service for PM (preventative maintenance).
- Work has been completed and the engineer is ready to test D1.
- D1 restoration alignment has been completed via checklist and WO.
- The system engineer wants to observe diesel performance while fully loaded on the grid.

Task Standard: D1 is running, paralleled and loaded to 2500-2700 and 1000 KVAR onto Bus 15.

Required Materials: None.

General References: 1C20.7, "D1/D2 Diesel Generators," Rev. 16

**Initiating Cues:**

- The SS directs you to manually start D1 diesel generator in preparation for synchronizing and loading per 1C20.7, section 5.1. and fully load it per 1C20.7, section 5.1.2.

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 20 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>  1  </u> Performance step:	SAT/UNSAT
--------------------------------	-----------

**VERIFY** no storms or lightning are nearby.

Standard:

Verify no storms or lightning are nearby.

Comment:

**CUE:** No storms or lightning are nearby.

---

<u>  2  </u> Performance step:	SAT/UNSAT
--------------------------------	-----------

At the Woodward Governor, **VERIFY** the governor oil level is above the lower mark on the sight glass.

Standard:

Turbine Building Operator requested to verify governor oil level above the lower mark on the sight glass.

Comment:

**CUE:** Report as Turbine Building that, "the governor oil level is between the two marks on the sight glass."



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>3</u> Performance step:	SAT/UNSAT
----------------------------	-----------

**LOG** the diesel generator out of service and refer to T.S.3.7 for limiting conditions for operation.

Standard:

**Evaluator Note:** D1 should already be logged OOS and Tech Spec addressed per initial conditions of this JPM.

D1 is verified logged OOS and SS is reminded of Tech Spec applicability.

Comment:

**CUE:** D1 is logged OOS and Tech Spec has been addressed.

---

<u>4</u> Performance step:	SAT/UNSAT
----------------------------	-----------

**SET** the governor speed droop at 40.

Standard:

Turbine Building Operator requested to verify that the governor speed droop is set at 40.

Comment:

**CUE:** Report as Turbine Building Operator that, "the governor speed droop is set at 40."

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

__ 5 __ Performance step:	SAT/UNSAT
---------------------------	-----------

---

**VERIFY** the generator bearing oil level (NOT engine) is at the upper "NORMAL" stopped level.

Standard:

Turbine Building Operator requested to verify that the generator bearing oil level is at the upper NORMAL stopped level.

Comment:

**CUE:** Report as Turbine Building Operator that, "the generator bearing oil level is at the upper NORMAL stopped level."

---

__ 6 __ Performance step:	SAT/UNSAT
---------------------------	-----------

---

**VERIFY** the two amber indicating lights on 44901, D1 DIESEL GEN GOV READY LIGHTS, are ON.

Standard:

**Evaluator Note:** It may be necessary to adjust the governor speed setting to light the amber lights.

Two amber indicating lights on 44901 are verified ON.

Comment:

**CUE:** None

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

7 Performance step:

SAT/UNSAT

**VERIFY** or set the governor load limit at 10.

Standard:

Turbine Building Operator requested to verify that the governor load limit is set at 10.

Comment:

**CUE:** Report as Turbine Building Operator that, "the governor load limit is set at 10."

---

8 Performance step: *(critical step)*

SAT/UNSAT

**BEGIN** a 3 minute prelube by placing CS-55313, D1 PRE LUBE OIL PUMP in the "ON" position.

Standard:

**Evaluator Note:** The engine shall be prelubed for at least 3 minutes but less than 10 minutes prior to starting. **If the engine is not started within 10 minutes of prelube, it must be rolled over per a different section of the procedure.** The engine should be started with the prelube oil pump running. The prelube oil pump will stop automatically when the engine reaches 250 rpm. The local operator must place the switch to ON and hold it in that position for at least three minutes until after D1 has been started.

Turbine Building Operator requested to start the prelube oil pump and report when it has been running for 3 minutes.

Comment:

**CUE:** Report as Turbine Building Operator that, "the pre lube oil pump has been running with control switch CS-55313 held in on position for 3 minutes."

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

9 Performance step: **CRITICAL STEP**

SAT/UNSAT

**After a 3 minute prelube, then START D1 using CS-46935, D1 DIESEL GENERATOR.**

Standard:

**EVALUATOR NOTE:** To reduce the fire hazard due to oil accumulation in the exhaust manifolds, non-loaded run time at startup should be minimized.

**D1 diesel generator is started by using CS-46935.**

Comment:

**CUE:** None.

---

10 Performance step:

SAT/UNSAT

When the engine starts, then **RELEASE CS-55313, D1 PRE LUBE OIL PUMP.**

Standard:

Turbine Building Operator requested to release CS-55313.

Comment:

**CUE:** Report as Turbine Building Operator that, "CS-55313 is released."

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

11 Performance step:

SAT/UNSAT

**VERIFY** 41925, D1 EMERG GENERATOR TACHOMETER, indicates approximately 900 rpm.

Standard:

D1 speed verified at approximately 900 rpm.

Comment:

**CUE:** None.

---

12 Performance step:

SAT/UNSAT

**VERIFY** the two amber indicating lights on 44901, D1 DIESEL GEN GOV READY LIGHTS, are **ON**.

Standard:

**EVALUATOR NOTE:** It may be necessary to adjust the governor speed setting to light the amber lights.

Two amber indicating lights on 44901 are verified **ON**.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>13</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

**PLACE** CS-46902, D1 DSL GEN EXCITER CONTROL SEL SW, in "MANUAL".

Standard:

CS-46902 placed in MANUAL.

Comment:

**CUE:** None.

---

<u>14</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

**MAINTAIN** 4200 - 4400 volts on 41902, D1 EMERG GEN METER GROUP, using CS-46933, D1 DSL GEN EXCITER CONTROL.

Standard:

**EVALUATOR NOTE:** Operator must monitor 3 different meters to maintain voltage.

4200 - 4400 volts maintained on 41902 by using CS-46933.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>15</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

**VERIFY** Bus 15 Status Panel white indicating light 44325-21, D1 UP TO SPEED & VOLTAGE, is **ON**.

Standard:

44325-21 is verified ON.

Comment:

**CUE:** None.

---

<u>16</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

**VERIFY** ERCS Point 1Y7008D, D1 GEN ROOM VENT RUNNING, indicates RUNNING.

Standard:

**EVALUATOR NOTE:** ERCS screen actually reads as "121 DSL GEN ROOM VENT RUNNING."

ERCS Point 1Y7008D, D1 GEN ROOM VENT RUNNING, indicates RUNNING.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

17 Performance step:	SAT/UNSAT
----------------------	-----------

---

On Control Room Panel B-1, **VERIFY** Status Panel indicating light 44103-A2, D1 RUNNING, is ON.

Standard:

44103-A2, D1 RUNNING is verified ON.

Comment:

**CUE:** None.

---

18 Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
---	-----------

---

**PLACE CS-46948, BKR 15-2 MAN/AUTO CLOSURE SEL SW in "MANUAL".**

Standard:

**CS-46948 placed in manual.**

Comment:

**CUE:** None.



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

19 Performance step: **CRITICAL STEP** SAT/UNSAT

**PLACE CS-46906, Bus 15 SYNCHROSCOPE SEL SW in "D1".**

Standard:

**CS-46906 placed in D1.**

Comment:

**CUE:** None.

---

20 Performance step: *(Critical step)* SAT/UNSAT

**OPERATE** CS-46934, D1 DSL GEN GOVERNOR SPEED CONTROL, until the indicator on 41911, SYNCHROSCOPE, is turning slowly in a clockwise direction.

Standard:

SYNCHROSCOPE, is turning slowly in a clockwise direction.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>21</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

**VERIFY** the two white lights on 44900, D1/D2 SYNCHRONIZING LIGHTS, go out as the synchroscope indicator passes 12 o'clock.

Standard:

Two white lights 44900 extinguish as indicator passes 12 o'clock.

Comment:

**CUE:** None.

---

<u>22</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

**ADJUST** CS-46933, D1 DSL GEN EXCITER CONTROL, until 4191002, 4160 BUS INCOMING VOLTS, indicates slightly greater than 4191001, 4160 BUS RUNNING VOLTS.

Standard:

4191002, 4160 BUS INCOMING VOLTS, indicates slightly greater than 4191001, 4160 BUS RUNNING VOLTS.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>23</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

**VERIFY** approximately 120 volts on 4191001, 4160 BUS RUNNING VOLTS.

Standard:

Running voltmeter 4191001 indicates approximately 120 volts.

Comment:

**CUE:** None.

---

<u>24</u> Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
--	-----------

**As the synchroscope indicator approaches 12 o'clock, CLOSE breaker 15-2 using CS-46950, BUS 15 SOURCE FROM D1 DSL GEN.**

Standard:

**Breaker 15-2 closed. CS-46950 green light extinguishes; red light illuminates.**

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

25 Performance step: SAT/UNSAT

Immediately **VERIFY** D1 picks up some load as indicated on 41915, D1 EMERG GENERATOR POWER.

Standard:

Kilowatt meter 41915 indicating kilowatts being supplied.

Comment:

**CUE:** None.

---

26 Performance step: SAT/UNSAT

**VERIFY** balanced loading on the following ammeters:

- 41902-04, D1 EMERG GENERATOR PHASE A AMPS
- 41902-05, D1 EMERG GENERATOR PHASE B AMPS
- 41902-06, D1 EMERG GENERATOR PHASE C AMPS

Standard:

D1 phase amp meters 41902-04, 41902-05, and 41902-06 indicating balanced amps.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>27</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

**PLACE** CS-46948, BKR 15-2 MAN/AUTO CLOSURE SEL SW, in "AUTO".

Standard:

CS-46948 placed in auto.

Comment:

**CUE:** None.

---

<u>28</u> Performance step:	SAT/UNSAT
-----------------------------	-----------

**PLACE** CS-46906, BUS 15 SYNCHROSCOPE SEL SW, in "OFF".

Standard:

CS-46906, BUS 15 SYNCHROSCOPE SEL SW, in "OFF".

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

29 Performance step: **CRITICAL STEP**

SAT/UNSAT

**Over a 3 minute period, INCREASE D1 load to approximately 1650 KW using CS-46934, D1 DSL GEN GOVERNOR SPEED CONTROL.**

Standard:

**CS-46934 used to increase load to approximately 1650 KW over a 3 minute period.**

Comment:

**CUE:** None.

---

30 Performance step: **CRITICAL STEP**

SAT/UNSAT

**RAISE the VARs to approximately 600 KVAR (41916, D1 EMERG GENERATOR REACTIVE LOAD) by adjusting CS-46933, D1 DSL GEN EXCITER CONTROL.**

Standard:

**CS-46933 used to increase reactive load to approximately 600 KVAR.**

Comment:

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>31</u> Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
--	-----------

**After D1 has run at 1650 KW for 10 minutes gradually increase load to 2060 KW over a 3 minute period using CS-46934, D1 DSL GEN GOVERNOR SPEED CONTROL.**

Standard:

**D1 running carrying 2060 KW**

Comment:

**CUE:** Shortly after D1 has been running at 1650 KW tell the candidate that 10 minutes have elapsed.

---

<u>32</u> Performance step: <b>CRITICAL STEP</b>	SAT/UNSAT
--	-----------

**After D1 has run at 2060 KW for 10 minutes gradually increase load to 2500-2700 KW over a 3 minute period using CS-46934, D1 DSL GEN GOVERNOR SPEED CONTROL.**

Standard:

**D1 running carrying 2500-2700 KW**

Comment:

**CUE:** Shortly after D1 has been running at 2500-2700 KW tell the candidate that 10 minutes have elapsed.

---

33 Performance step: **CRITICAL STEP**

SAT/UNSAT

**RAISE the VARs to approximately 1000 KVAR (41916, D1 EMERG GENERATOR REACTIVE LOAD) by adjusting CS-46933, D1 DSL GEN EXCITER CONTROL.**

Standard:

**CS-46933 used to increase reactive load to approximately 1000 KVAR.**

Comment:

---

**Terminating cue:** D1 diesel generator loaded to  $\approx 2500$ - $2700$  KW and  $\approx 1000$  KVAR.



VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

**Initial Conditions:**

- D1 diesel generator has been out of service for PM (preventative maintenance).
- Work has been completed and the engineer is ready to test D1.
- D1 restoration alignment has been completed via checklist and WO.
- The system engineer wants to observe diesel performance while fully loaded on the grid.

**Initiating Cues:**

- The SS directs you to manually start D1 diesel generator in preparation for synchronizing and loading per 1C20.7, section 5.1. and fully load it per 1C20.7, section 5.1.2.

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	NUMBER:
		<b>1C20.7</b>
		REV: <b>17</b>
		Page 1 of 80

<b>CONTINUOUS USE</b>
<ul style="list-style-type: none"><li>• <i>Continuous use of procedure required.</i></li><li>• <i>Read each step prior to performing.</i></li><li>• <i>Mark off steps as they are completed.</i></li><li>• <i>Procedure SHALL be at the work location.</i></li></ul>

O.C. REVIEW DATE: <b>9-22-99</b>	OWNER: <b>D. Smith</b>	EFFECTIVE DATE <b>6-25-02</b>
-------------------------------------	---------------------------	----------------------------------

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	<b>NUMBER:</b>
		<b>1C20.7</b>
		<b>REV: 17</b>
		<b>Page 2 of 80</b>

**TABLE OF CONTENTS**

Section	Title	Page
1.0	PURPOSE.....	4
2.0	PREREQUISITES.....	4
3.0	PRECAUTIONS.....	4
4.0	LIMITATIONS.....	6
5.0	PROCEDURES.....	7
5.1	D1 Normal System Operations.....	7
	5.1.1 Remote Start of D1.....	7
	5.1.2 Synchronizing and Loading D1.....	9
	5.1.3 Unloading and Removing D1 from Bus 15.....	12
	5.1.4 Shutdown and Return of D1 to Auto Standby.....	13
5.2	D2 Normal System Operations.....	16
	5.2.1 Remote Start of D2.....	16
	5.2.2 Synchronizing and Loading D2.....	18
	5.2.3 Unloading and Removing D2 from Bus 16.....	21
	5.2.4 Shutdown and Return of D2 to Auto Standby.....	22
5.3	D1 System Alternate Operating Modes.....	25
	5.3.1 Local Start of D1.....	25
	5.3.2 Local Shutdown and Air Roll of D1.....	28
	5.3.3 Auto Start of D1.....	32
	5.3.4 Transfer of Bus 15 from D1 to Offsite Source 1RY.....	33
	5.3.5 Transfer of Bus 15 from D1 to Offsite Source CT11.....	35
	5.3.6 Continuous Operation of D1.....	37
	5.3.7 Emergency Start of D1 following a Loss of All AC Power.....	38
	5.3.8 Manual Air Roll of D1.....	40
	5.3.9 Remote Start of D1 With Low Lube Oil Temperature.....	42
	5.3.10 Pressurize D1 Start-up Air Receiver From D2 Start-up Air System Via Cross-connects.....	46

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	<b>NUMBER:</b> <b>1C20.7</b>
		<b>REV: 17</b>
		<b>Page 3 of 80</b>

**TABLE OF CONTENTS**

<b>Section</b>	<b>Title</b>	<b>Page</b>
5.4	D2 System Alternate Operating Modes .....	48
5.4.1	Local Start of D2 .....	48
5.4.2	Local Shutdown and Air Roll of D2 .....	51
5.4.3	Auto Start of D2 .....	55
5.4.4	Transfer of Bus 16 from D2 to Offsite Source 1RY .....	56
5.4.5	Transfer of Bus 16 from D2 to Offsite Source CT11 .....	58
5.4.6	Continuous Operation of D2 .....	60
5.4.7	Emergency Start of D2 following a Loss of All AC Power .....	61
5.4.8	Manual Air Roll of D2 .....	63
5.4.9	Remote Start of D2 With Low Lube Oil Temperature.....	65
5.4.10	Pressurize D2 Start-up Air Receiver From D1 Startup Air System Via Cross-connects.....	69
5.5	D1 Local Operation With the Control Room Isolated .....	70
6.0	ATTACHMENTS .....	71
7.0	REFERENCES.....	71
7.1	Developmental References .....	71
7.2	Implementing References.....	71

**LIST OF TABLES**

Table 1	D1 Diesel Generator Operation Log .....	73
Table 2	D2 Diesel Generator Operation Log .....	75
Table 3	D1 Independent Verification Checklist .....	77
Table 4	D1 Independent Verification Checklist .....	78

**LIST OF FIGURES**

Figure 1	Reactive Capability vs. Kilowatt Load .....	79
Figure 2	Woodward Governor.....	80

PRAIRIE ISLAND NUCLEAR GENERATING PLANT

OPERATING PROCEDURES

PRAIRIE ISLAND NUCLEAR GENERATING PLANT		
<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	<b>NUMBER:</b> <b>1C20.7</b>
		<b>REV:</b> <b>17</b>
		<b>Page 4 of 80</b>

## 1.0 PURPOSE

This procedure provides detailed operating instructions for D1 and D2 Diesel Generators.

## 2.0 PREREQUISITES

- 2.1 D1 Diesel Generator and associated support systems are in a state of standby readiness for emergency mode of operation in accordance with Integrated Operations Checklists C1.1.20.7-1 through C1.1.20.7-4.
- 2.2 D2 Diesel Generator and associated support systems are in a state of standby readiness for emergency mode of operation in accordance with Integrated Operations Checklists C1.1.20.7-5 through C1.1.20.7-8.

## 3.0 PRECAUTIONS

- 3.1 The operability requirements of the Unit 1 diesel generators are covered in Technical Specifications Section T.S.3.7 (~~ITS 3.7~~)
- 3.2 IF a diesel generator is out of service, THEN SP 1118 is required to verify paths from the grid to the Unit 1 buses.
- 3.3 Only one of the redundant diesel generators is to be paralleled with the grid at any one time, leaving the other diesel generator available in standby service.
- 3.4 Engine oil level is measured using a dip stick. The scale is for the engine running condition and a stopped line indicates FULL stopped oil level. IF the stopped oil level is below FULL, THEN check again when the engine is running or add oil to fill. The correct oil is Mobilgard 450 or Mobilgard 450NC.

To add oil to the engine, remove the plug in the cap on the elbow on the crankcase cover marked "12C." Fifty gallons are required to raise the oil level from "ADD" to "FULL."

### NOTE:

An infrequent exhaust fire is the size of a candle and burns itself out in a few minutes. A slightly larger flame may occur if the exhaust system has not been reworked recently. Any flame is undesirable and a work order should be issued if any flame occurs.

- 3.5 To reduce the fire hazard due to oil accumulation in the exhaust manifolds, minimize the non-loaded run time. The engine should be watched closely when load is being

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	NUMBER: <b>1C20.7</b>
		REV: <b>17</b>
		Page 6 of 80

- 3.13 The diesel generators should not be operated when adverse weather conditions exist. The diesel generators should be in standby condition, not connected to the grid when storms or lightning are nearby,
- 3.14 IF all offsite power is lost while the diesel generator is paralleled with the grid, THEN the operator **SHALL** immediately verify offsite power supply breakers to the associated safeguard bus are tripped and return the DSL GEN EXCITER CONTROL SEL SW, to "AUTO."
- 3.15 Major electrical switching should not be performed while the diesel generator is connected to the grid.
- 3.16 With the start-up air receiver at the low pressure alarm setpoint of 175 psig, each air receiver has sufficient capacity to crank the engine for at least 20 seconds.

#### 4.0 LIMITATIONS

NONE

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	<b>NUMBER:</b> <b>1C20.7</b>
		<b>REV: 17</b>
		<b>Page 7 of 80</b>

## 5.0 PROCEDURES

### 5.1 D1 Normal System Operations

#### 5.1.1 Remote Start of D1

This section provides instruction for starting D1 Diesel Generator from the Control Room. Some actions required by this section are performed locally and are identified by a pound sign (#)

- A. **Verify** no storms or lightning are nearby. \_\_\_\_\_
- # B. At the Woodward Governor, **verify** the governor oil level is above the lower mark on the sight glass. IF it is below the lower mark, THEN add oil to the governor to fill to the upper mark (Mobil DTE Hvy Med). \_\_\_\_\_
- C. **Log** the diesel generator out of service and **refer** to T.S.3.7 for limiting conditions for operation. \_\_\_\_\_

**Notify the Shift Supervisor T.S. LCO 3.8.1.5 is NOT met and enter CONDITION B.**

**Entered CONDITION B at**

**TIME**

- # D. IF paralleling with the grid, THEN set the governor speed droop at 40. \_\_\_\_\_
- # E. **Verify** the generator bearing oil level (NOT engine) is at the upper "NORMAL" stopped level. IF it is below the upper mark, THEN add oil (Mobil DTE BB). \_\_\_\_\_

**NOTE:**

It may be necessary to adjust the governor speed setting to light the amber lights.

- F. **Verify** the two amber indicating lights on 44901, D1 DIESEL GEN GOV READY LIGHTS, are ON. \_\_\_\_\_
- # G. **Verify** or **set** the governor load limit at 10. \_\_\_\_\_



<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	NUMBER: <b>1C20.7</b>
		REV: <b>17</b>
		Page 8 of 80

(Step 5.1.1 continued from previous page. . .)

<b>CAUTION:</b>	THE ENGINE SHALL BE PRELUBED FOR AT LEAST THREE (3) BUT LESS THAN TEN (10) MINUTES PRIOR TO ENGINE START.  IF THE ENGINE IS NOT STARTED WITHIN 10 MINUTES OF PRELUBE, <u>THEN</u> ROLLOVER THE ENGINE PER STEP 5.3.8.
-----------------	---

<b>NOTE:</b>	The engine should be started while the prelube oil pump is running.  The prelube oil pump will stop automatically when the engine reaches 250 rpm.
--------------	--

- # H. Begin a 3 minute prelube by placing **CS-55313**, D1 PRE LUBE OIL PUMP in the "ON" position.
- 

<b>NOTE:</b>	An infrequent exhaust fire is the size of a candle and burns itself out in a few minutes. A slightly larger flame may occur if the exhaust system has not been reworked recently. Any flame is undesirable and a work order should be issued if any flame occurs. (Reference Precaution 3.6).
--------------	---

<b>CAUTION:</b>	TO REDUCE THE FIRE HAZARD DUE TO OIL ACCUMULATION IN THE EXHAUST MANIFOLDS, MINIMIZE THE NON-LOADED RUN TIME. THE ENGINE SHOULD BE WATCHED CLOSELY WHEN LOAD IS BEING APPLIED UNTIL THE EXHAUST TEMPERATURES REACH THEIR NORMAL LEVELS AND THE EXHAUST SYSTEM CEASES TO SMOKE.
-----------------	--

- I. AFTER 3 minutes of prelube, THEN start D1 using **CS-46935**, D1 DIESEL GENERATOR.
- # J. WHEN the engine starts, THEN release **CS-55313**, D1 PRE LUBE OIL PUMP.
- K. Verify **41925**, D1 EMERG GENERATOR TACHOMETER, indicates approximately 900 rpm.
- 
- 
-

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	NUMBER: <b>1C20.7</b>
		REV: <b>17</b>
		Page 9 of 80

(Step 5.1.1 continued from previous page. . .)

<b>NOTE:</b>	It may be necessary to adjust engine speed to light the amber lights.
--------------	---

- L. **Verify** the two amber indicating lights on **44901**, D1 DIESEL GEN GOV READY LIGHTS, are ON. \_\_\_\_\_
- M. **Place CS-46902**, D1 DSL GEN EXCITER CONTROL SEL SW, in "MANUAL." \_\_\_\_\_
- N. **Maintain** 4200-4400 volts on **41902**, D1 EMERG GEN METER GROUP, using **CS-46933**, D1 DSL GEN EXCITER CONTROL. \_\_\_\_\_
- O. **Verify** Bus 15 Status Panel white indicating light **44325-0201**, D1 UP TO SPEED & VOLTAGE, is ON. \_\_\_\_\_
- P. **Verify** ERCS Point 1Y7008D, D1 GEN ROOM VENT RUNNING, indicates Running. \_\_\_\_\_
- Q. On Control Room Panel B-1, **verify** Status Panel indicating light **44103-A2**, D1 RUNNING, is ON. \_\_\_\_\_
- R. **Refer** to Step 5.1.2 for synchronizing and loading D1. \_\_\_\_\_

### 5.1.2 Synchronizing and Loading D1

This section provides instructions for synchronizing and loading D1 Diesel Generator from the Control Room. Some actions required by this section are performed locally and are identified by a pound sign (#).

- A. **Place CS-46948**, BKR 15-2 MAN/AUTO CLOSURE SEL SW, in "MANUAL." \_\_\_\_\_
- B. **Place CS-46906**, BUS 15 SYNCHROSCOPE SEL SW, in "D1." \_\_\_\_\_
- C. **Operate CS-46934**, D1 DSL GEN GOVERNOR SPEED CONTROL, until the indicator on **41911**, SYNCHROSCOPE, is turning slowly in a clockwise direction. \_\_\_\_\_

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	NUMBER: <b>1C20.7</b>
		REV: <b>17</b>
		Page 10 of 80

(Step 5.1.2 continued from previous page. . .)

- D. **Verify** the two white lights on **44900**, D1/D2 SYNCHRONIZING LIGHTS, go out as the synchroscope indicator passes 12 o'clock. \_\_\_\_\_
- E. **Adjust CS-46933**, D1 DSL GEN EXCITER CONTROL, until **4191002**, 4160 BUS INCOMING VOLTS, indicates slightly greater than **4191001**, 4160 BUS RUNNING VOLTS. \_\_\_\_\_
- F. **Verify** approximately 120 volts on **4191001**, 4160 BUS RUNNING VOLTS. \_\_\_\_\_

**CAUTION:**

IF ALL OFFSITE POWER IS LOST WHILE D1 DIESEL GENERATOR IS PARALLELED WITH THE GRID, THEN THE OPERATOR SHALL IMMEDIATELY VERIFY OFFSITE POWER SUPPLY BREAKERS TO BUS 15 ARE TRIPPED AND RETURN CS-46902, D1 DSL GEN EXCITER CONTROL SEL SW, TO "AUTO."

- G. As the synchroscope indicator approaches 12 o'clock, **CLOSE BKR 15-2** using **CS-46950**, BUS 15 SOURCE FROM D1 DSL GEN. \_\_\_\_\_
- H. Immediately **verify** D1 picks up some load as indicated on **41915**, D1 EMERG GENERATOR POWER. \_\_\_\_\_
- I. **Verify** balanced loading on the following ammeters:
- **41902-04**, D1 EMERG GENERATOR PHASE A AMPS \_\_\_\_\_
  - **41902-05**, D1 EMERG GENERATOR PHASE B AMPS \_\_\_\_\_
  - **41902-06**, D1 EMERG GENERATOR PHASE C AMPS \_\_\_\_\_
- J. **Place CS-46948**, BKR 15-2 MAN/AUTO CLOSURE SEL SW, in "AUTO." \_\_\_\_\_

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	<b>NUMBER:</b> <b>1C20.7</b>
		<b>REV: 17</b>
		<b>Page 11 of 80</b>

(Step 5.1.2 continued from previous page. . .)

- K. Place **CS-46906**, BUS 15 SYNCHROSCOPE SEL SW, in "OFF."

<b>NOTE:</b>	An infrequent exhaust fire is the size of a candle and burns itself out in a few minutes. A slightly larger flame may occur if the exhaust system has not been reworked recently. Any flame is undesirable and a work order should be issued if any flame occurs. (Reference Precaution 3.6).
--------------	---

<b>CAUTION:</b>	TO REDUCE THE FIRE HAZARD DUE TO OIL ACCUMULATION IN THE EXHAUST MANIFOLDS, MINIMIZE THE NON-LOADED RUN TIME. THE ENGINE SHOULD BE WATCHED CLOSELY WHEN LOAD IS BEING APPLIED UNTIL THE EXHAUST TEMPERATURES REACH THEIR NORMAL LEVELS AND THE EXHAUST SYSTEM CEASES TO SMOKE.
-----------------	--

<b>NOTE:</b>	Bus voltage should be maintained between 4200 and 4400 volts. For purposes of this procedure, ERCS is the preferred bus voltage indication.
--------------	---

- L. Over a 3 minute period, **increase** D1 load to approximately 1650 KW using **CS-46934**, D1 DSL GEN GOVERNOR SPEED CONTROL.
- M. Raise the VARs to approximately 600 KVAR (**41916**, D1 EMERG GENERATOR REACTIVE LOAD) by adjusting **CS-46933**, D1 DSL GEN EXCITER CONTROL.
- N. After D1 has run at 1650 KW for 10 minutes, gradually **increase** load to 2060 KW over a 3 minute period using **CS-46934**, D1 DSL GEN GOVERNOR SPEED CONTROL.
- O. After D1 has run at 2060 KW for 10 minutes, gradually **increase** load to 2500-2700 KW over a 3 minute period using **CS-46934**, D1 DSL GEN GOVERNOR SPEED CONTROL.

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	<b>NUMBER:</b> <b>1C20.7</b>
		<b>REV: 17</b>
		<b>Page 12 of 80</b>

(Step 5.1.2 continued from previous page. . .)

- P. **Raise** VARs to approximately 1000 KVARs by adjusting **CS-46933**, D1 DSL GEN EXCITER CONTROL.

- # Q. After D1 has run at full load for 30 minutes, **take** data per Table 1D1 Diesel Generator Operation Log.

- R. **Run** D1 at full load for 1 hour.

### 5.1.3 Unloading and Removing D1 from Bus 15

This section provides instructions for unloading and removing D1 Diesel Generator from Bus 15 from the Control Room.

- A. **Reduce** D1 load to 1500 KW using **CS-46934**, D1 DSL GEN GOVERNOR SPEED CONTROL, and **run** approximately 5 minutes for cooldown.
- B. **Remove** D1 VAR load using **CS-46933**, D1 DSL GEN EXCITER CONTROL.
- C. **Reduce** D1 load to 100 KW using **CS-46934**, D1 DSL GEN GOVERNOR SPEED CONTROL.

#### **CAUTION:**

**TRIP BREAKER 15-2 BEFORE TRIPPING THE DIESEL TO ENSURE D1 GENERATOR WILL NOT MOTORIZE.**

- D. **OPEN BKR 15-2** using **CS-46950**, BUS 15 SOURCE FROM D1 DSL GEN.

#### **NOTE:**

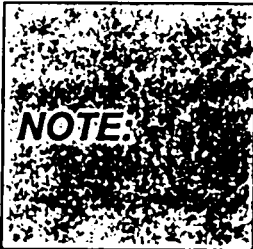
**The engine should be stopped within three (3) minutes of removing load.**

- E. **Verify** the green indicating light on **CS-46950**, BUS 15 SOURCE FROM D1 DSL GEN, is ON.
- F. **Refer** to Step 5.1.4 for shutting down and returning D1 to standby.

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	<b>NUMBER:</b>
		<b>1C20.7</b>
		<b>REV: 17</b>
		<b>Page 13 of 80</b>

#### 5.1.4 Shutdown and Return of D1 to Auto Standby

This section provides instructions for shutting down and returning D1 Diesel Generator to auto standby from the Control Room. Some actions required by this section are performed locally and are identified by a pound sign (#).

 <p><b>NOTE:</b></p>	<p>Following an automatic start via a Safety Injection signal, the MCA relay must be reset before stopping the diesel generator. Failure to reset the MCA relay prior to stopping the diesel generator will result in another start of the diesel when speed decreases to the low speed relay setting (250 rpm). The MCA relay cannot be reset until the SI is reset.</p>
---	---

- A. IF D1 received a Safety Injection (SI) signal (spurious or actual), THEN perform the following steps in order prior to shutting down the diesel generator:
  1. **Verify or reset** SI on Control Room panel B-1 using pushbutton **46182**, SAFETY INJECTION RESET TRAIN A and pushbutton **46183**, SAFETY INJECTION RESET TRAIN B. \_\_\_\_\_
  2. **Reset** the MCA Relay by momentarily placing **CS-46967**, D1 DSL GEN SI MCA RESET, on Panel G-1 in the "MCA RESET" position. \_\_\_\_\_
  3. **Verify** **46967-01**, SAFE INJ START ACTUATED, is OFF. \_\_\_\_\_
- B. **Place** **CS-46906**, BUS 15 SYNCHROSCOPE SEL SW, in "D1." \_\_\_\_\_
- C. **Operate** **CS-46934**, D1 EMERG GEN GOVERNOR SPEED CONTROL, until the pointer on **41911**, SYNCHROSCOPE is stopped or is turning slowly in the fast direction. \_\_\_\_\_
- D. **Place** **CS-46906**, BUS 15 SYNCHROSCOPE SEL SW, in "OFF". \_\_\_\_\_

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	<b>NUMBER:</b> <b>1C20.7</b>
		<b>REV: 17</b>
		<b>Page 14 of 80</b>

(Step 5.1.4 continued from previous page. . .)

E. **Verify** the two amber indicating lights on **44901**,  
D1 DIESEL GEN GOV READY LIGHTS, are ON. \_\_\_\_\_

F. **Stop** D1 using **CS-46935**, D1 DIESEL GENERATOR. \_\_\_\_\_



THE DIESEL GENERATOR CONTROL SWITCH LIGHTS  
SHOULD NOT GIVE DUAL INDICATION DURING STARTUP  
OR SHUTDOWN. BOTH LIGHTS SHOULD BE  
EXTINGUISHED BETWEEN 263 AND 647 RPM.

G. **Verify** the following on **CS-46935**, D1 DIESEL  
GENERATOR:

- Green indicating light **46935-01** is ON. \_\_\_\_\_
- Red indicating light **46935-02** is OFF. \_\_\_\_\_

H. **Verify** **41925**, D1 EMERG GEN TACHOMETER,  
decreases to zero rpm. \_\_\_\_\_

I. **Verify** zero volts on **41902**, D1 EMERG GEN METER  
GROUP. \_\_\_\_\_

J. **Verify** Bus 15 Status Panel white indicating light  
**44325-0201**, D1 UP TO SPEED & VOLTAGE, is OFF. \_\_\_\_\_

K. **Place** **CS-46902**, D1 DSL GEN EXCITER CONTROL  
SEL SW, in "AUTO." \_\_\_\_\_

L. On Control Room Panel B-1, **verify** Status Panel  
indicating light **44103-A2**, D1 RUNNING, is OFF. \_\_\_\_\_

M. **Verify** the two amber indicating lights on **44901**,  
D1 DIESEL GEN GOV READY LIGHTS, are ON. \_\_\_\_\_

# N. **Set** the governor speed droop to zero. \_\_\_\_\_

# O. Ten (10) to 15 minutes after the engine shutdown, **roll**  
over D1 Diesel Engine per Step 5.3.8 to displace the  
oil above the upper pistons. \_\_\_\_\_

<b>C</b>	<b>D1/D2 DIESEL GENERATORS</b>	NUMBER:
		<b>1C20.7</b>
		REV: <b>17</b>
		Page 15 of 80

(Step 5.1.4 continued from previous page. . .)

- P. **Perform** Independent Verification of D1 operability by completing Table 3, D1 Independent Verification Checklist.

IV

- Q. **Log** D1 Diesel Generator returned to service and end LCO.

Notify the Shift Supervisor to exit T.S. LCO 3.3.1b.  
CONDITION B

Exit CONDITION B at

TIME

- # R. **Blow** condensate from the upper and lower starting air receivers.
- # S. **Drain** D1 Contaminated Fuel Tank using 1DG-37, DIRTY FUEL TK DRN.
- # T. **Verify** no alarms on the local annunciator panel.

<b>CAUTION:</b>	<p>APPROXIMATELY 1 HOUR AFTER THE DIESEL GENERATOR IS SHUTDOWN, ERCS POINT 1Y7008D, D1 GEN ROOM VENT RUNNING, SHOULD INDICATE NOT RUNNING. <u>IF</u> THE VENTILATION SYSTEM IS TO BE SHUTDOWN MANUALLY BEFORE THE POST SHUTDOWN TIMER EXPIRES, <u>THEN</u> IT MUST BE SHUTDOWN BY PLACING CONTROL SWITCH 55403 ON THE GEN AUX CONTROL PANEL IN STOP <u>AND NOT</u> BY ADJUSTING THE TIMER TO ZERO.</p>
-----------------	--

- U. One hour after shutdown, **verify** ERCS Point 1Y7008D, D1 GEN ROOM VENT RUNNING, indicates Not Running.



---

RO JPM B.1 f

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Perform NIS Power Range Daily  
Calibration With Thermal Power  
Greater Than Instrument PowerJob Performance Measure No: ROB1fK/A Reference: 015A1.01 [3.5/3.8]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

**Method of testing:**Simulated Performance \_\_\_ Actual Performance X Classroom \_\_\_ Simulator X Plant \_\_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

- Unit 1 is at approximately 100% power.
- Reactor Power and Steam Generator Levels have been stable for the last 48 hours.

Task Standard: Perform SP1005, "NIS Power Range Daily Calibration," Rev. 30. Thermal power will be 101.5% recalibration of N42 is required.

Required Materials: Consumable copy of SP1005, Table 1.

General References: SP1005, "NIS Power Range Daily Calibration," Rev. 30.

**Initiating Cues:**

- The SS directs you to perform SP1005, "NIS Power Range Daily Calibration."

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 15 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

1 Performance step:

SAT/UNSAT

**PERFORM** Steps 6.1 through 6.5.

Standard:

Performs steps 6.1 through 6.5 with no deviations from procedural requirements.

Comment:

**CUE:** None.

---

2 Performance step:

SAT/UNSAT

**ENTER** ERCS TOC "CALM," option 1.

Standard:

ERCS TOC "CALM," option 1 entered.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

3 Performance step:

SAT/UNSAT

**RECORD** the following on Table 1, Part A 1<sup>st</sup> Reading.

- Time of reading
- ERCS REACTOR THERMAL POWER in percent.
- NIS power range channels (N41 thru N44)

Standard:

Table 1, Part A 1<sup>st</sup> Reading data recorded.

Comment:

**CUE:** After the readings have been recorded inform the candidate that five minutes have elapsed.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

4 Performance step:

SAT/UNSAT

**RECORD** the following on Table 1, Part A 2<sup>nd</sup> Reading.

- Time of reading
- ERCS REACTOR THERMAL POWER in percent.
- NIS power range channels (N41 thru N44)

Standard:

Table 1, Part A 2<sup>nd</sup> Reading data recorded.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

  5   Performance step:

SAT/UNSAT

**OBTAIN** an ERCS Calorimetric Calculation Summary printout, ERCS "CALM" option 2 and attach to this surveillance.

Standard:

**EVALUATOR NOTE:** The candidate must select the F4 function key first then select option 2.

An ERCS Calorimetric Calculation Summary printout, ERCS "CALM" option 2 and attached to this surveillance.

Comment:

**CUE:** After the ERCS Calorimetric Calculation Summary printout, ERCS "CALM" option 2 has been recorded inform the candidate that five minutes have elapsed since the second set of readings.

---

  6   Performance step:

SAT/UNSAT

**RECORD** the following on Table 1, Part A 3<sup>rd</sup> Reading.

- Time of reading
- ERCS REACTOR THERMAL POWER in percent.
- NIS power range channels (N41 thru N44)

Standard:

Table 1, Part A 3<sup>rd</sup> Reading data recorded.

Comment:

**CUE:** None

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

7 Performance step:

SAT/UNSAT

**COMPLETE** the "AVERAGE" column on Table 1, Part A.

Standard:

**EVALUATOR NOTE:** The average thermal power should read 99.76% and average NIS power should be N41 is 100%, N42 is 99%, N43 is 100%, and N44 is 100%. See attached SP1005, page 8.

"AVERAGE" column on Table 1, Part A completed.

Comment:

**CUE:** None.

---

8 Performance step:

SAT/UNSAT

**TRANSFER** the "AVERAGE" column from Table 1, Part A to the appropriate "AVERAGE" column on Table 1, Part B.

Standard:

"AVERAGE" column on Table 1, Part A transferred to the appropriate "AVERAGE" column on Table 1, Part B.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

9 Performance step:

SAT/UNSAT

**COMPLETE** the "DIFFERENCE" column in Table 1, Part B.

Standard:

**EVALUATOR NOTE:** The candidate will determine that N42 requires recalibration per TS 4.1-1.

The "DIFFERENCE" column in Table 1, Part B completed.

Comment:

**CUE:** None.

---

10 Performance step: **CRITICAL STEP**

SAT/UNSAT

**CALIBRATE** channel gain for N42 as follows:

- **RE-VERIFY** initial conditions, refer to Section 6.0
- **RECORD "INITIAL GAIN SETTING"** R303 for the NIS Channel in Table 1, Part C.
- **ADJUST** the gain on the NIS POWER RANGE B drawer until NIS power is within the range of, equal to thermal power to .5% greater than thermal power.
- **LOCK** the potentiometer in place.
- **RECORD** the "FINAL GAIN SETTING" in Table 1, Part C.

Standard:

**EVALUATOR NOTE:** The recalibration N42 is required per TS 4.1-1, SP1005 requires the recalibration of N41, N43, and N44 as well. Only N42 need be completed for the satisfactory completion of this JPM.

**N42 has been recalibrated to 99.98%, the potentiometers have been locked, and the final gain settings have been recorded on SP1005 Table 1.**

Comment:

**CUE:** None.

**Terminating cue:** When the candidate has changed the gain for power range channel N42 the JPM has ended.



VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

**KEY**

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER: <b>SP 1005</b>
		REV: <b>30</b>
		Page 8 of 8

Table 1 Unit 1 NIS Power Range Daily Calibration

**PART - A (INITIAL AND AVERAGE READINGS):**

	1 <sup>st</sup> Reading	2 <sup>nd</sup> Reading	3 <sup>rd</sup> Reading
TIME			

ERCS REACTOR THERMAL POWER (PERCENT)	99.76	99.76	99.76
--	-------	-------	-------

IND.  
NIS PWR

N41	100	100	100.1
N42	99.6	99.6	99.6
N43	100	100	100
N44	100	100.1	100

AVG. REACTOR  
THERMAL PWR

99.76
-------

AVG. NIS  
IND. PWR

100.033
99.6
100.00
100.033

**PART - B (CALCULATED AVERAGE DIFFERENCE):**

NIS CHANNEL	AVERAGE REACTOR THERMAL POWER	(MINUS)	AVERAGE NIS INDICATED POWER	(EQUALS)	(DIFFERENCE)
(N41)	99.76	-	100.033	=	-.273
(N42)		-	99.6	=	+.16
(N43)		-	100.00	=	-.24
(N44)		-	100.033	=	-.273

**PART - C (INITIAL AND FINAL GAIN SETTINGS):**

NIS CHANNEL	INITIAL GAIN SETTING	FINAL GAIN SETTING
(N41)		
(N42)	438	440
(N43)		
(N44)		

May be recorded as 438

**KEY**

**Initial Conditions:**

- Unit 1 is at approximately 100% power.
- Reactor Power and Steam Generator Levels have been stable for the last 48 hours.

**Initiating Cues:**

- The SS directs you to perform SP1005, “NIS Power Range Daily Calibration.”

<div style="text-align: center; font-size: 2em; font-weight: bold;">SP</div>	<div style="text-align: center; font-weight: bold;">NIS POWER RANGE DAILY CALIBRATION</div>	<div style="text-align: right; font-weight: bold;">NUMBER:</div> <div style="text-align: right; font-weight: bold;">SP 1005</div>
		<div style="text-align: right; font-weight: bold;">REV:</div> <div style="text-align: right; font-weight: bold;">30</div>
		<div style="text-align: right; font-weight: bold;">Page 1 of 11</div>

<b>SYSTEMS:</b>	NIS, ERCS
-----------------	-----------

**WO:** \_\_\_\_\_

RESULTS/COMMENTS:

Work Order Initiated: YES \_\_\_\_\_ NO \_\_\_\_\_      WO No. \_\_\_\_\_

### Test Performance:

Performed By: \_\_\_\_\_  
(Signature or Initials)

Date: \_\_\_\_\_

### Additional Requirements:

NONE

Review of Acceptability:  
Acceptance Criteria Met? YES/NO Shift Supervisor: \_\_\_\_\_

SP Completion:  
Shift Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

SP Surveillance Schedule Satisfied. YES/NO Surv. Admin: \_\_\_\_\_

**Other Actions for Consideration:**

Nuclear Engineer Review: \_\_\_\_\_ Date: \_\_\_\_\_

<b>O.C. REVIEW DATE:</b>	<b>OWNER:</b>	<b>EFFECTIVE DATE</b>
<b>3-20-02</b>	<b>J. Kapitz</b>	<b>3-20-02</b>

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER: <b>SP 1005</b>
		REV: <b>30</b>
		Page 2 of 11

## 1.0 PURPOSE AND GENERAL DISCUSSION

REFERENCE USE
<ul style="list-style-type: none"> <li>• <i>Procedure segments may be performed from memory.</i></li> <li>• <i>Use the procedure to verify segments are complete.</i></li> <li>• <i>Mark off steps within segment before continuing.</i></li> <li>• <i>Procedure should be available at the work location.</i></li> </ul>

### 1.1 Purpose

This procedure is performed daily (~~ITS: 0100 to 2400~~) when above 15% RATED THERMAL POWER (~~ITS: within 12 hours after THERMAL POWER L 15% RTP~~) per T.S. 4.1-1A note 5 (~~ITS: SH33.1.2~~). Compare calorimetric to excore power indication and adjust excore channel gains to be consistent with calorimetric power, if the absolute difference is greater than 2%. This will assure conservatism for reactor protection and control.

### 1.2 Acceptance Criteria

#### 1.2.1 General

In the event Acceptance Criteria cannot be met, refer to Ops. Manual Section G, "Surveillance And Periodic Test Program," for additional guidance.

#### 1.2.2 NIS indication

- A. Calorimetric to excore power indication is within 2% of the absolute difference.
- B. IF the absolute difference is greater than 2%, THEN adjust excore channel gains to be within 2% of calorimetric power.

### 1.3 General Discussion

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER: <b>SP 1005</b>
		REV: <b>30</b>
		Page 3 of 11

- 1.3.1** The pound sign (#) is not used because all the steps are performed inside the Control Room.
- 1.3.2** Steps identified by an asterisk (\*) are Acceptance Criteria.

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER: <b>SP 1005</b>
		REV: <b>30</b>
		Page 4 of 11

## 2.0 REFERENCES

- 2.1 Tech Spec: T.S.4.1-1, Operational Safety Review (~~T.S.3.8.1 Reactor Trip System (RTS) Instrumentation~~)..
- 2.2 Operating License DPR-42, Section 2.C.1
- 2.3 Ops Manual:
- 2.3.1 C41.4, Emergency Response Computer System (ERCS) Operating Procedure NSSS Applications Programs, Section 3.0 - Calorimetric program - CALM
- 2.3.2 B9A, Nuclear Instrumentation System
- 2.4 Technical Manual: XH-1-1931, Nuclear Instrumentation Technical Manual
- 2.5 Implementing Reference(s)
- NONE
- 2.6 INPO SEN 228

## 3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Perform NIS power range gain adjustments slowly to avoid inadvertent rate or high level channel trips.
- 3.2 IF ERCS is out-of-service, or computer inputs are invalid to the ERCS calculated reactor thermal power, THEN use SP 1005B, Alternative Reactor Thermal Power Calculations, to determine reactor thermal power.

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER: <b>SP 1005</b>
		REV: <b>30</b>
		Page 5 of 11

- 3.3 IF this surveillance procedure is performed during reduced power as a result of load follow operation, THEN, perform NIS gain adjustment if NIS indicated power is less than reactor thermal power or if NIS indicated power exceeds reactor thermal power by greater than 2%.
- 3.4 After NIS power range calibration, each NIS channel indicated power should be equal to or greater than reactor thermal power to assure conservatism for reactor protection and control.
- 3.5 Turbine perturbation during performance of this surveillance procedure could cause non-conservative NIS adjustments. If this occurs, use diverse indications of Reactor Power and if needed perform this surveillance procedure again.



<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER: <b>SP 1005</b>
		REV: <b>30</b>
		Page 6 of 11

#### 4.0 PERSONNEL AND SPECIAL EQUIPMENT REQUIREMENTS

##### 4.1 Suggested Personnel

One (1) Control Room Operator - to record data and make gain adjustments as necessary.

##### 4.2 Special Equipment

NONE

#### 5.0 SPECIAL CONSIDERATIONS

NONE

#### 6.0 PREREQUISITES AND INITIAL CONDITIONS

6.1 IF there has been a change of greater than 5% thermal power during the previous 48 hours, THEN perform Pre-job Brief. \_\_\_\_\_

6.2 Power is greater than 15% rated thermal power. \_\_\_\_\_

6.3  $T_{AVE} = T_{REF} \pm 0.5^{\circ}\text{F}$  except in coastdown operations per C1.4. \_\_\_\_\_

6.4 Power is stable,  $\pm 1\%$ . \_\_\_\_\_

6.5 SG level is stable. \_\_\_\_\_

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER: <b>SP 1005</b>
		REV: <b>30</b>
		Page 7 of 11

## 7.0 PROCEDURE

<b>NOTE:</b>	<b><u>IF ERCS Calorimetric Calculation is unavailable, THEN</u></b> determine Reactor Thermal Power using SP 1005B.
--------------	--

### 7.1 Initiate manual data collection.

7.1.1 Enter ERCS TOC "CALM", option 1. \_\_\_\_\_

7.1.2 Record the following on Table 1, Part A 1<sup>st</sup> Reading.

- Time of reading. \_\_\_\_\_
- ERCS REACTOR THERMAL POWER in percent. \_\_\_\_\_
- NIS power range channels (N41 thru N44). \_\_\_\_\_

7.1.3 Approximately five (5) minutes after the first reading, record the following on Table 1, Part A 2<sup>nd</sup> Reading.

- Time of reading. \_\_\_\_\_
- ERCS REACTOR THERMAL POWER in percent. \_\_\_\_\_
- NIS power range channels (N41 thru N44). \_\_\_\_\_

7.1.4 Obtain an ERCS Calorimetric Calculation Summary printout, ERCS "CALM" option 2 and **attach** to this surveillance.. \_\_\_\_\_

7.1.5 Approximately five minutes after the second reading, record the following on Table 1, Part A 3<sup>rd</sup> Reading.

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER: <b>SP 1005</b>
		REV: <b>30</b>
		Page 8 of 11

- Time of reading. \_\_\_\_\_
- ERCS REACTOR THERMAL POWER in percent. \_\_\_\_\_
- NIS power range channels (N41 thru N44). \_\_\_\_\_

7.2 Complete the "AVERAGE" column on Table 1, Part A. \_\_\_\_\_

7.3 Transfer the "AVERAGE" column numbers from Table 1, Part A to the appropriate "AVERAGE" column on Table 1, Part B. \_\_\_\_\_

7.4 Complete the "DIFFERENCE" column in Table 1, Part B. \_\_\_\_\_

<b>NOTE:</b>	Channels may be calibrated to provide more accurate results even if the adjustment is not required per Step 7.5.
--------------	--

<b>NOTE:</b>	If this procedure is performed at unit conditions other than full power, refer to precaution 3.3.
--------------	---

7.5 IF the difference column calculates to be a positive number OR:

- For normal plant conditions: is negative by more than 0.5,
- For load change conditions: is negative by greater than 2.0,

THEN **calibrate** channel gain as follows:

7.5.1 Re-verify initial conditions, refer to Section 6.0. \_\_\_\_\_

<b>NOTE:</b>	Steps 7.5.2 through 7.5.5 are required for each of the NIS channels requiring calibration. NA these steps and corresponding area of Table 1 if calibration is not required.
--------------	---

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER:
		<b>SP 1005</b>
		REV: <b>30</b>
		Page 9 of 11

- 7.5.2 Record "INITIAL GAIN SETTING" R303 for the NIS channel in Table 1, Part C.
- 

<b>NOTE:</b>	The meter response during the next step could be delayed up to 6 seconds. Make adjustments slowly to avoid overshoot and possible channel trip.
--------------	---

- 7.5.3 Adjust the gain on the NIS POWER RANGE B drawer until NIS power is within the range of, equal to thermal power to 0.5% greater than thermal power.
- 

- 7.5.4 Lock the potentiometer in place.
- 

- 7.5.5 Record the "FINAL GAIN SETTING" in Table 1, Part C.
- 

<b>NOTE:</b>	A history of previous gain settings can be reviewed using the CONTROL ROOM ARCHIVE function and the VIEW function.
--------------	--

- 7.6 IF adjustment to the gain setting was performed THEN perform the following steps, IF no adjustments were performed, THEN N/A Steps 7.6.1 thru 7.6.6.

- 7.6.1 Enter TOC "SP 1005" in ERCS.
- 

- 7.6.2 Select the CALORIMETRIC DATA COLLECTION function.
- 

- 7.6.3 Select the START function.
- 

- 7.6.4 WHEN ERCS data collection is complete, THEN enter TOC "SP 1005" in ERCS.
- 

- 7.6.5 Select the EDIT/PRINT RESULTS function to substitute the new gain settings.
-

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	<b>NUMBER:</b>
		<b>SP 1005</b>
		<b>REV: 30</b>
		<b>Page 10 of 11</b>

7.6.6 Select the SAVE function to save the new settings.

---

## 8.0 ADDITIONAL REQUIREMENTS

NONE

## 9.0 ATTACHMENTS

Table 1 - Unit 1 NIS Power Range Daily Calibration

<b>SP</b>	<b>NIS POWER RANGE DAILY CALIBRATION</b>	NUMBER:
		<b>SP 1005</b>
		REV: <b>30</b>
		Page 11 of 11

Table 1 Unit 1 NIS Power Range Daily Calibration

**PART - A (INITIAL AND AVERAGE READINGS):**

	1 <sup>st</sup> Reading	2 <sup>nd</sup> Reading	3 <sup>rd</sup> Reading
TIME			

ERCS REACTOR THERMAL POWER (PERCENT)			
--	--	--	--

IND.  
NIS PWR

N41			
N42			
N43			
N44			

AVG. REACTOR  
THERMAL PWR

--

AVG. NIS  
IND. PWR


**PART - B (CALCULATED AVERAGE DIFFERENCE):**

NIS CHANNEL	AVERAGE REACTOR THERMAL POWER	(MINUS)	AVERAGE NIS INDICATED POWER	(EQUALS)	(DIFFERENCE)
(N41)		-		=	
(N42)		-		=	
(N43)		-		=	
(N44)		-		=	

**PART - C (INITIAL AND FINAL GAIN SETTINGS):**

NIS CHANNEL	INITIAL GAIN SETTING	FINAL GAIN SETTING
(N41)		
(N42)		
(N43)		
(N44)		

---

from 51:

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Respond To An Abnormal Radiation  
Level During Waste Gas ReleaseJob Performance Measure No: ROB.1.gK/A Reference: 071A2.02, 071A3.03 [3.3/3.6, 3.6/3.8]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

**Method of testing:**Simulated Performance ☐ Actual Performance ☒ Classroom ☐ Simulator ☒ Plant ☐**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

- A release of 125 Low Level Gas Decay Tank was just initiated per C21.3-10.5, Releasing Radioactive Gas From 125 Low Level Gas Decay Tank.
- 122 Auxiliary Building Special Exhaust Fan is out of service.
- Annunciator 47022-0109, "ALARM ON RADIATION MONITOR PANELS TRAIN A" is in alarm.

Task Standard: Release of 125 Low Level Gas Decay Tank suspended by closing CV-31271, 121 Auxiliary Building Special Exhaust Fan started manually, and Rad Protection notified.

Required Materials: None.

General References: C47022-0109 and C47047-2R-37

**Initiating Cues:**

- There is a Unit 2 release of the 125 Low Level Gas Decay Tank in progress - The Unit 2 operator is monitoring the release - Annunciator 47022-0109 has alarmed and the Shift Supervisor directs you to respond per the alarm response procedure.

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 30 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

1 Performance step:

SAT/UNSAT

Per Alarm Response Procedure 47022-0109 **DETERMINE** the initiating alarm and respond to the alarm as specified in C47047, Train A Radiation Monitoring System Alarm Response Procedures.

Standard:

Determines by observing rad monitor panel indication, that 2R-37, Aux Bldg Vent Gas Monitor A is in alarm with meter deflection above CPM setpoint.

Comment:

**CUE:** None.

---

2 Performance step:

SAT/UNSAT

**VERIFY** automatic actions have occurred.

Standard:

Determines that 122 Auxiliary Building Special Exhaust Fan is not available and that 121 Auxiliary Building Special Exhaust Fan did not start.

Comment:

**CUE:** None.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

3 Performance step: **CRITICAL STEP**

SAT/UNSAT

**START** 121 Auxiliary Building Special Exhaust Fan by placing CS-46070 in "START".

Standard:

CS-46070 placed in START.

Comment:

**CUE:** None

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

4 Performance step:

SAT/UNSAT

**VERIFY** when 121 Special Exhaust Fan breaker CLOSES, then:

- 121 Aux. Bldg. Special Exhaust Fan Discharge damper MD-32236 OPENS.
- 121 Aux. Bldg. Special Vent Filter Heater Starts.
- 11, 12, 21, and 22 Aux. Bldg. Makeup Air Fans stop and associated inlet and outlet dampers CLOSE.
- 11 and 21 Aux. Bldg. General Exhaust Fans stop and associated discharge dampers CLOSE.
- Laundry, Locker, and Filter Room Ventilation Exhaust Fans stop and associated dampers CLOSE.

Standard:

- 121 Aux. Bldg. Special Exhaust Fan Discharge damper MD-32236 verified open by observing U1 SI Active PNL 44103, A-10 and U2 SI Active PNL 44514, A-10 illuminated.
- 121 Aux. Bldg. Special Vent Filter Heater verified started by observing U1 Ventilation Panel 44071-0409 illuminated.
- 11, 12, 21, and 22 Aux. Bldg. Makeup Air Fans verified stopped by observing CS-46104, CS-46105, CS-46594, CS-46595 red lights extinguished and green lights illuminated; and associated inlet and outlet dampers verified closed by observing U1 Ventilation Panel 44071-0109, 0110, 0209, and 0210 extinguished.
- Laundry, Locker, and Filter Room Ventilation Exhaust Fans verified stopped and associated dampers closed by observing U1 Ventilation Panel 44071-0604, 0605, and 0205 extinguished; and 44071-0504, 0505, and 0105 illuminated.
- 11 and 21 Aux. Bldg. General Exhaust Fans verified stopped and associated discharge dampers closed by observing U1 Ventilation Panel 44701-0111 and 0112 extinguished.

Comment:

**CUE:** When asked, inform candidate that, "U2 SI Active PNL 44514, A-10 is illuminated."

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

  5   Performance step: **CRITICAL STEP** SAT/UNSAT

**Contact Auxiliary Building Operator and VERIFY CLOSED, Low Activity Gas Decay Tanks Plant Vent valve CV-31271.**

Standard:

**As Auxiliary Building Operator, report that, "CV-31271 is NOT closed." When directed to close CV-31271, acknowledge direction and then report that, "CV-31271 is closed."**

Comment:

**CUE:** None

---

  6   Performance step: SAT/UNSAT

**VERIFY** radiation level high on RD Panel by observing 2R-30.

Standard:

Determines that radiation levels high on only 2R-37.

Comment:

**CUE:** None

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

7 Performance step: **CRITICAL STEP**

SAT/UNSAT

**NOTIFY Radiation Protection Group.**

Standard:

**Radiation Protection Group notified that 2R37 has alarmed.**

Comment:

**CUE:** As Radiation Protection Group, acknowledge notification.

---

**Terminating cue:** When the candidate notifies the Radiation Protection Group

VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

**Initial Conditions:**

- A release of 125 Low Level Gas Decay Tank was just initiated per C21.3-10.5, Releasing Radioactive Gas From 125 Low Level Gas Decay Tank.
- 122 Auxiliary Building Special Exhaust Fan is out of service.
- Annunciator 47022-0109, “ALARM ON RADIATION MONITOR PANELS TRAIN A” is in alarm.

**Initiating Cues:**

- There is a Unit 2 release of the 125 Low Level Gas Decay Tank in progress - The Unit 2 operator is monitoring the release - Annunciator 47022-0109 has alarmed and the Shift Supervisor directs you to respond per the alarm response procedure.

TITLE:	ALARM RESPONSE PROCEDURE	C47022
		Rev. 37
		Page 1 of 2

ANNUNCIATOR LOCATION: 47022-0109

HI RADIATION TRAIN A PANEL ALARM	Alarm	
	Alarm on Radiation Monitoring Panels Train A	
HIGH RADIATION TRAIN A PANEL ALARM	Approximate Setpoints	
	Tripped	Reset
SER Input Point: (INST & REF 1.) Address: (24W09)	Various	Various

#### AUTOMATIC ACTIONS

NONE

#### INITIAL ACTIONS

1. Determine the initiating alarm AND respond to the alarm as specified in C47047, TRAIN A RADIATION MONITORING SYSTEM ALARM RESPONSE PROCEDURES.
2. IF malfunction of radiation monitor, THEN refer to C11, RADIATION MONITORING SYSTEM.

#### SUBSEQUENT ACTIONS

**NOTE:** The conditions of the plant during the performance of this procedure may involve the Emergency Plan. Notify the Shift Supervisor to consider classification per F3-2.

See subsequent action section in C47047, TRAIN A RADIATION MONITORING SYSTEM ALARM RESPONSE PROCEDURES.

#### INSTRUMENTS & REFERENCES

1. SER Input Points:

844 thru 858

861 thru 867

971 & 972



TITLE:	ALARM RESPONSE PROCEDURE	C47022
		Rev. 37
		Page 2 of 2

ANNUNCIATOR LOCATION: 47022-0109

INSTRUMENTS & REFERENCES (Continued)

2. Actuating device (local alarm).
3. Logic Diagram NF-40750 Sheet 5.
4. Schematic Diagram NE-40011 Sheets 108, 109, 111 & 124.

TITLE:	ALARM RESPONSE PROCEDURE	C47047
		Rev. 31
		Page 1 of 4

ANNUNCIATOR LOCATION: 47047 2R-37

AUX BLDG VENT GAS MONITOR A	Alarm	
	High Radiation Level Alarm	
AUXILIARY BUILDING VENTILATION GAS MONITOR A	ESF Equipment Actuation	
	Approximate Setpoints	
	Tripped	Reset
SER Input Point: (0853) Address: (24W09)	Refer to Posted Setpoint in CRM	Not Specified

#### AUTOMATIC ACTIONS

1. Starts 121 Auxiliary Building Special Exhaust Fan.
2. WHEN 121 Special Exhaust Fan breaker CLOSES, THEN equipment aligns as follows:
  - A. MD-32236, 121 ABSV EHXT MD, OPENS.
  - B. 121 ABSV Filter Heater Starts.
  - C. 11, 12, 21 and 22 Aux. Bldg. Makeup Air Fans stop and associated inlet and outlet dampers CLOSE.
  - D. 11 and 21 Aux. Bldg. General Exhaust Fans stop and associated discharge dampers CLOSE.
  - E. Laundry, Locker and Filter Room Ventilation Exhaust Fans stop and associated dampers CLOSE.
  - F. On Unit 1 SI Active Panel **44103-A10**, 121 ABSV RNNG IL lights.
  - G. On Unit 2 SI Active Panel **44514-A10**, 121 ABSV RNNG IL lights.
  - H. On **44071**, U1/U2 Ventilation Status Panel, the following indicating lights turn ON:
    - **44071-0105**, 121 FLTR RM EXHT FAN STOPPED
    - **44071-0409**, 121 ABSV FLTR HTR ON
    - **44071-0504**, 11 LNDRY RM EXHT FAN STOPPED
    - **44071-0505**, 11 LOCKER RM EXHT FAN STOPPED

CONTINUED

TITLE:	ALARM RESPONSE PROCEDURE	C47047
		Rev. 31
		Page 2 of 4

ANNUNCIATOR LOCATION: 47047 2R-37

#### AUTOMATIC ACTIONS (Continued)

1. On **44071**, U1/U2 Ventilation Status Panel, the following indicating lights remain OFF:

- **44071-0109**, 11 AUX BLDG M-U AIR DMPR IMPROPER
- **44071-0110**, 21 AUX BLDG M-U AIR DMPR IMPROPER
- **44071-0111**, 11 AUX BLDG GNL EXHT DMPR IMPROPER
- **44071-0112**, 21 AUX BLDG GNL EXHT DMPR IMPROPER
- **44071-0205**, 121 FLTR RM EXHT DMPRS IMPROPER
- **44071-0209**, 12 AUX BLDG M-U AIR DMPR IMPROPER
- **44071-0210**, 22 AUX BLDG M-U AIR DMPR IMPROPER
- **44071-0604**, 11 LNDRY RM ISOL/EXHT CD-34036/34046 IMPROPER
- **44071-0605**, 11 LOCKER RM ISOL/DISCH DMPR IMPROPER

3. **CV-31271**, GAS DCY TNKS TO PLNT VNT CV, CLOSES.

#### INITIAL ACTIONS

1. IF CPM meter deflection is at QR near background level AND there is no ESF Equip Alarm, THEN:

**reset** the Hi Radiation Alarm

AND

**inform** System Engineer of the spike.

2. IF meter deflection is above QR near CPM setpoint, OR the Hi Rad Level Alarm cannot be reset in Step 1, THEN **verify** AUTOMATIC ACTIONS have occurred.

3. **Verify** radiation level high on RD Panel by observing **2R-30**.

4. **Notify** Radiation Protection Group.

5. **Notify** Duty Chemist to secure sampling operations.

TITLE:	ALARM RESPONSE PROCEDURE	C47047
		Rev. 31
		Page 3 of 4

ANNUNCIATOR LOCATION: 47047 2R-37

**INITIAL ACTIONS (Continued)**

6. Using the local pushbuttons, **stop** the following exhaust fans:
  - CS-19003, 121 LNDRY & MNTR TNKS EXHT FAN
  - CS-19004, 121 HOT CHEM LAB EXHT FAN
  - CS-19005, 121 SMPL RM EXHT FAN
  - CS-19006, 122 SMPL RM EXHT FAN
7. On **44071**, U1/U2 Ventilation Status Panel, **verify** the following status lights are LIT:
  - **44071-0106**, 121 SMPL RM EXHT FAN STOPPED
  - **44071-0107**, 122 SMPL RM EXHT FAN STOPPED
  - **44071-0406**, 121 HOT CHEM LAB EXHT FAN STOPPED
  - **44071-0407**, 121 LDNRY&MNTR TNKS EXHT FAN STOPPED
8. On **44071**, U1/U2 Ventilation Status Panel, **verify** the following status lights are NOT LIT:
  - **44071-0206**, 121 SMPL RM DMPRS IMPROPER
  - **44071-0207**, 122 SMPL RM DMPRS IMPROPER
  - **44071-0506**, 121 HOT CHEM LAB DMPRS IMPROPER
  - **44071-0507**, 121 LNDRY&MNTR TNKS DMPRS IMPROPER
9. Locate AND isolate source of contamination.

**SUBSEQUENT ACTIONS**

1. **Monitor** Shield Building vent gas monitors, **1R-22** and **2R-22**, for an increase.
2. IF high radiation level persists, THEN **start** 121 Sample Room Booster Fan using **CS-19001**, to replenish air to sample room.
3. IF waste gas decay tank was being released, THEN **resample** AND **re-analyze**.
4. IF radiation monitor malfunctioned, THEN **refer** to C11, RADIATION MONITORING SYSTEM for possible additional required action.

TITLE:	ALARM RESPONSE PROCEDURE	C47047
		Rev. 31
		Page 4 of 4

ANNUNCIATOR LOCATION: 47047 2R-37

INSTRUMENTS & REFERENCES

1. Actuating device (29050).
2. Flow Diagrams NF-39600 and NE-39790 Sheet 10.
3. Logic Diagram NF-40750 Sheet 2.
4. C11, RADIATION MONITORING SYSTEM.
5. H4, Offsite Dose Calculations Manual.

Copy 1

JPM B.2.a RO

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Manually Borate the RCS from  
Outside the Control RoomJob Performance Measure No: RO  
B.2.aK/A Reference: 004 A2.14 [3.8/3.9]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X Actual Performance \_\_\_ Classroom \_\_\_ Simulator \_\_\_ Plant X**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

- The Control Room was evacuated due to toxic gas
- Unit 1 and Unit 2 reactors were tripped
- Communications have been established between the Boric Acid Blender Area and the Hot Shutdown Panel
- You are replacing the Auxiliary Plant Equipment Operator (APEO) in the Auxiliary Building
- Power is available

Task Standard: Boric Acid Pump started and proper valve lineup completed for boration of RCS from the Hot Shutdown Panel.

Required Materials: 1C1.3 AOP1, "Shutdown From Outside the Control Room - Unit 1", Step 2.4.30, Rev 6

General References: 1C1.3 AOP1, "Shutdown From Outside the Control Room - Unit 1", Rev 6

**Initiating Cues:**

The Unit 1 Shift Supervisor directs you to borate the Unit 1 RCS for 40 minutes from the boric acid blender area using the 12 Boric Acid Transfer Pump per 1C1.3 AOP1, "Shutdown From Outside the Control Room - Unit 1" beginning at Step 2.4.30.D.

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 30 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

1 Performance step: **CRITICAL STEP** SAT/UNSAT

**PLACE** control switch for 12 boric acid transfer pump LOCAL/REMOTE switch in "LOCAL" (CS-51507, "12 BA XFER PMP LCL/REM").

Standard:

**PLACES** control switch for 12 boric acid transfer pump LOCAL/REMOTE switch in "LOCAL".

Comment:

**EVALUATOR NOTE:** The control switch for 12 BAT Pump is located at the Remote Shutdown Panel in the Turbine Building.

**CUE:** The control switch for 12 boric acid transfer pump LOCAL/REMOTE switch is in "LOCAL".

---

2 Performance step: **CRITICAL STEP** SAT/UNSAT

**START** the 12 Boric Acid Transfer Pump in FAST SPEED by depressing control switch CS-51508, "12 BA XFER PMP RNNG FAST PB".

Standard:

**STARTS** the 12 Boric Acid Transfer Pump in FAST SPEED.

Comment:

**CUE:** RED light 5150801 is LIT.

---



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

3 Performance step: SAT/UNSAT

**PLACE** the control switch for Emergency Boration Valve MV-32086 in "LOCAL" (CS-19580, "EMERG BOR TO CHG PMPS ISOL MV-32086 LCL/REM").

Standard:

**PLACES** the control switch for Emergency Boration Valve MV-32086 in "LOCAL".

Comment:

**EVALUATOR NOTE:** This step and the rest of the steps are performed in the Auxiliary Building.

**CUE:** Control switch for Emergency Boration Valve MV-32086 is in "LOCAL".

---

4 Performance step: SAT/UNSAT

**PLACE** control switch for MV-32086, "EMERGENCY BORATION TO CHARGING PUMPS ISOL VALVE" in "OPEN" (CS-19581, "EMERG BOR TO CHG PMPS ISOL MV-32086").

Standard: **PLACES** the control switch for Emergency Boration Valve MV-32086 to "OPEN".

Comment:

**EVALUATOR NOTE:** Faulting of this step should result in the applicant going to the next step (Step 2.40.G) **OR** to manually OPEN valve MV-32086.

**CUES:**

- The control switch for Emergency Boration Valve MV-32086 is in "OPEN" position.
- Valve is not indicating movement, at first some noise from motor operator, now do NOT hear anything.
- **IF** applicant wants to inform the Shift Supervisor of the failure of the Emergency Boration Valve to open, **THEN** state that we must get emergency boration started and what does he recommend.
- **IF** checked, state that breaker 1L2-B4 indicates tripped.

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

<u>  5  </u> Performance step:	SAT/UNSAT
--------------------------------	-----------

---

**OPEN** breaker 1L2-B4 for MV-32086, "EMERGENCY BORATION TO CHARGING PUMPS ISOL VALVE".

Standard:

**LOCATES** and **VERIFIES** breaker 1L2-B4 for MV-32086 at MCC 1L Bus 2, Cell B4 is OPEN.

Comment:

**EVALUATOR NOTE:** Applicant may indicate that he would open breaker.

**CUE:** Breaker 1L2-B4 indicated tripped.

---

<u>  6  </u> Performance step:	<b>CRITICAL STEP</b>	SAT/UNSAT
--------------------------------	----------------------	-----------

---

**Manually OPEN** MV-32086, "EMERG BORATION TO CHG PMP SUCT".

Standard:

**Manually OPENS** MV-32086, "EMERG BORATION TO CHG PMP SUCT".

Comment:

**CUES:**

- If applicant asks for an electrician to relieve the torque on the valve actuator per 5AWI 15.5.1, inform him that this is an emergency situation and the Shift Supervisor has waived this requirement.
- Handwheel is engaged, valve stem is moving, and valve is open.

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

7 Performance step: *(Critical Step)* SAT/UNSAT

Locally **THROTTLE** VC-11-58, "EMERG BORATION TO CHG PMP SUCT THROTTLE VLV" to obtain 12 gpm as indicated on local flowmeter 1FI-113. BEGIN timing the boric acid addition.

Standard:

Locally **THROTTLES** VC-11-58 to obtain 12 gpm as indicated on local flowmeter 1FI-113. BEGINS timing the boric acid addition.

Comment:

**CUES:** - The flowmeter indicates 12 gpm.  
- Forty (40) minutes have elapsed.

---

8 Performance step: *(Critical step)* SAT/UNSAT

Manually **CLOSE** MV-32086, "EMERG BORATION TO CHG PMP SUCT"

Standard:

Manually **CLOSES** MV-32086.

Comment:

**CUE:** Handwheel is engaged, valve stem is moving, and valve is closed.

---

Terminating cue: WHEN MV-32086 is closed after completing the boric acid addition.

## VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

**Initial Conditions:**

- The Control Room was evacuated due to toxic gas
- Unit 1 and Unit 2 reactors were tripped
- Communications have been established between the Boric Acid Blender Area and the Hot Shutdown Panel
- You are replacing the Auxiliary Plant Equipment Operator (APEO) in the Auxiliary Building
- Power is available

**Initiating Cues:**

The Unit 1 Shift Supervisor directs you to borate the Unit 1 RCS for 40 minutes from the boric acid blender area using the 12 Boric Acid Transfer Pump per 1C1.3 AOP1, "Shutdown From Outside the Control Room - Unit 1" beginning at Step 2.4.30.D.



<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b> <b>1C1.3 AOP1</b>
		<b>REV:</b> <b>6</b>
		<b>Page 1 of 16</b>

<b>CONTINUOUS USE</b>
<ul style="list-style-type: none"><li>• <i>Continuous use of procedure required.</i></li><li>• <i>Read each step prior to performing.</i></li><li>• <i>Mark off steps as they are completed.</i></li><li>• <i>Procedure SHALL be at the work location.</i></li></ul>

<b>O.C. REVIEW DATE:</b> <b>3/25/98</b>	<b>OWNER:</b> <b>D. Smlth</b>	<b>EFFECTIVE DATE</b> <b>2/22/02</b>
--	----------------------------------	---

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b> <b>1C1.3 AOP1</b>
		<b>REV:</b> <b>6</b>
		<b>Page 2 of 16</b>

**TABLE OF CONTENTS**

<b>Section</b>	<b>Title</b>	<b>Page</b>
1.0	PURPOSE.....	3
2.0	PROCEDURES .....	4
2.1	Symptoms.....	4
2.2	Automatic Actions .....	4
2.3	Immediate Manual Actions .....	4
2.4	Subsequent Manual Actions .....	4
2.5	Recovery Actions.....	14
3.0	ATTACHMENTS .....	14
4.0	REFERENCES .....	15
4.1	Developmental References .....	15
4.2	Implementing References .....	15

**LIST OF APPENDICES**

Appendix A	Plant Electrical Lineup Following Reactor Trip and Control Room Evacuation.....	16
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<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	NUMBER: <b>1C1.3 AOP1</b>
		REV: <b>6</b>
		Page 3 of 16

## 1.0 PURPOSE

<b>NOTE:</b>	<u>IF</u> evacuation of the Control Room is necessary due to a fire in the Control Room or Relay Room, <u>THEN</u> do NOT use this procedure, go directly to F5 Appendix B.
--------------	---

This procedure lists the actions necessary to place the unit in Mode 3, Hot Shutdown **(IT.S. Hot Standby)** condition should a hostile environment require a Control Room evacuation. Following a trip of the reactor, Mode 3, Hot Shutdown **(IT.S. Hot Standby)** conditions will be established and maintained from the remote Hot Shutdown Panels.

Several assumptions were made in the development of this procedure and deviations from these assumed conditions will require the addressing of those issues independently of this procedure. These assumptions are:

- 1.1 The Control Board is operational, all controls are functioning, and automatic features are operational.
- 1.2 The Control Room evacuation does not occur simultaneously with or subsequent to an accident condition.
- 1.3 Offsite power is available and in a normal lineup.
- 1.4 All plant communications systems are operational.

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b> <b>1C1.3 AOP1</b>
		<b>REV:</b> <b>6</b>
		<b>Page 4 of 16</b>

## 2.0 PROCEDURES

### 2.1 Symptoms

Control Room evacuation is deemed necessary by the Shift Supervisor due to hostile environmental conditions.

### 2.2 Automatic Actions

NONE

### 2.3 Immediate Manual Actions

NONE

### 2.4 Subsequent Manual Actions

<b>NOTE:</b>	The conditions of the plant during this procedure may involve the Emergency Plan. A recommendation should be made to the Shift Manager or unaffected unit Shift Supervisor to consider classification per F3-2.
--------------	---

<b>NOTE:</b>	If time permits, the following four steps should be done from the Control Room prior to evacuation. They may be done locally, however, if they were not completed before evacuation.
--------------	--

2.4.1 Trip the reactor.

\_\_\_\_\_

2.4.2 Verify turbine trip.

\_\_\_\_\_

2.4.3 Verify the safeguards buses are energized.

\_\_\_\_\_

2.4.4 Verify Safety Injection is NOT ACTUATED.

\_\_\_\_\_

2.4.5 All Control Room personnel **evacuate** to the Auxiliary Feedwater Pump Room Hot Shutdown Panels. LPE&ROs and PE&ROs **bring** radios from the Control Room.

\_\_\_\_\_

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b> <b>1C1.3 AOP1</b>
		<b>REV:</b> <b>6</b>
		<b>Page 5 of 16</b>

- 2.4.6**    **Announce** the reactor trip and Control Room evacuation over the plant paging system.

"Attention all plant personnel, Unit 1 and Unit 2 Reactor Trip and Control Room evacuation. Operators, report to your remote hot shutdown duty stations. All other personnel stand clear of the Control Room."

---

- 2.4.7**    **Repeat** the announcement.
- 

- 2.4.8**    Turbine Building Plant Attendant **perform** required actions following the reactor trip, then **report** to the Hot Shutdown Panel area.
- 

<b>NOTE:</b>	All Operations personnel will establish sound powered phone communications. Channel 1 - preferred, Channel 3 - alternate.
--------------	---

- 2.4.9**    Aux Bldg APEO **report** to Unit 1 Charging Pump area and **man** a headset.
- 

- 2.4.10**    Aux Bldg PA **report** to Unit 2 Charging Pump area and **man** a headset.
- 

- 2.4.11**    Turb Bldg APEO **report** to the BATP/BA Blender area and **man** a headset.
- 

- 2.4.12**    Shift Manager **report** to the TSC, **monitor** ERCS and **man** a headset.
-

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b> <b>1C1.3 AOP1</b>
		<b>REV:</b> <b>6</b>
		<b>Page 6 of 16</b>

- 2.4.13** From the Hot Shutdown Panel, **check** RCS temperature stable at or trending to 547°F (use average of T-hot and T-cold):

Loop A

**1TI-450AA, U1 RCS LOOP A HOT LEG TI (Train A)**  
**1TI-450BA, U1 RCS LOOP A COLD LEG TI (Train A)**

**1TI-450AB, U1 RCS LOOP A HOT LEG TI (Train B)**  
**1TI-450BB, U1 RCS LOOP A COLD LEG TI (Train B)**

Loop B

**1TI-451AA, U1 RCS LOOP B HOT LEG TI (Train A)**  
**1TI-451BA, U1 RCS LOOP B COLD LEG TI (Train A)**

**1TI-451AB, U1 RCS LOOP B HOT LEG TI (Train B)**  
**1TI-451BB, U1 RCS LOOP B COLD LEG TI (Train B)**

- 2.4.14** IF RCS temperature is NOT stable at or trending to 547°F, THEN perform the following:

- A. **Verify** both SG PORVs manual controllers are set at 0%:

**HC-28400, 11 SG PWR OPER RELIEF CV-31084**  
**AUTO/MAN CONT STA**

**HC-28407, 12 SG PWR OPER RELIEF CV-31089**  
**AUTO/MAN CONT STA**

- B. **Place** the desired SG PORV AUTO/MANUAL control switch in "MANUAL:"

**HC-28400, 11 SG PWR OPER RELIEF CV-31084**  
**AUTO/MAN CONT STA**

OR

**HC-28407, 12 SG PWR OPER RELIEF CV-31089**  
**AUTO/MAN CONT STA**

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	NUMBER: <b>1C1.3 AOP1</b>
		REV: <b>6</b>
		Page 7 of 16

(Step 2.4.14 continued from previous page. . .)

- C. **OPEN** the desired SG PORV as necessary to control RCS temperature:

**HC-28400, 11 SG PWR OPER RELIEF CV-31084  
AUTO/MAN CONT STA**

OR

**HC-28407, 12 SG PWR OPER RELIEF CV-31089  
AUTO/MAN CONT STA**

**2.4.15 Control SG water levels:**

- A. **Transfer** the AFW pumps to "LOCAL:"

**CS-51017, 11 TD AFWP**

**CS-51517, 12 MD AFWP**

- B. **Start** at least one AFW pump by depressing the appropriate control switch:

**CS-5101802, 11 TD AFWP START PB**

AND/OR

**CS-5151802, 12 MD AFWP START PB**

- C. **Transfer** the AFW pump flow control valves to "LOCAL:"

**CS-51003, 11 AFW TO 11 SG MV-32238**

**CS-51005, 11 AFW TO 12 SG MV-32239**

**CS-51503, 12 AFW TO 11 SG MV-32381**

**CS-51505, 12 AFW TO 12 SG MV-32382**

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	NUMBER: <b>1C1.3 AOP1</b>
		REV: <b>6</b>
		Page 8 of 16

(Step 2.4.15 continued from previous page. . .)

- D. **Verify wide range SG level in both SGs at or trending to 62%:**

11 SG      1LI-487A  
              1LI-487B

12 SG      1LI-488A  
              1LI-488B

**NOTE:**

Do not throttle AFW to SGs until level is > 62%.

- E. **Throttle the AFW pump flow control valves as necessary to maintain**

- F. **> 62% WR SG level:**

**CS-51004, 11 AFW TO 11 SG MV-32238**

**CS-51006, 11 AFW TO 12 SG MV-32239**

**CS-51504, 12 AFW TO 11 SG MV-32281**

**CS-51506, 12 AFW TO 12 SG MV-32382**

- 2.4.16 Check pressurizer level at or trending to programmed level (18%-21% Cold Cal, 1LI-433)**

- 2.4.17 IF pressurizer level is NOT at or trending to programmed level, THEN perform the following:**

- A. **Balance the Manual Control Signal to Auto Control Signal for the desired charging pump(s).**

**1HSC-428D 11 CHG PMP SPD CONT STA**

**1HSC-428E 12 CHG PMP SPD CONT STA**

**1HSC-428F 13 CHG PMP SPD CONT STA**

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b> <b>1C1.3 AOP1</b>
		<b>REV:</b> <b>6</b>
		<b>Page 9 of 16</b>

(Step 2.4.17 continued from previous page. . .)

- B. **Transfer** the desired charging pump(s) to "LOCAL:"

**CS-51515, 11 CHG PMP LCL/REM SLCTR** \_\_\_\_\_

**CS-7081001, 12 CHG PMP LCL/REM SLCTR**  
(at 12 Charging Pump Room) \_\_\_\_\_

**CS-51513, 13 CHG PMP LCL/REM SLCTR** \_\_\_\_\_

- C. **Locally adjust** charging pump speed to maintain  
pressurizer Cold-Cal level at 18% - 21%:

**1HSC-428D, 11 CHG PMP SPD CONT STA** \_\_\_\_\_

For 12 Charging Pump, **place VC-33-1, 12 CHG**  
**PMP LCL SPD CONT 3-WAY VLV**, in the "LOCAL"  
position, **THEN adjust** speed using **1HSC-428E,**  
**12 CHG PMP SPD CONT STA** \_\_\_\_\_

**1HSC-428F, 13 CHG PMP SPD CONT STA** \_\_\_\_\_

- D. **Start** additional charging pumps and **control** speed  
as necessary by depressing the appropriate control  
switch:

**CS-5151603, 11 CHG PMP STRT PB** \_\_\_\_\_

**CS-7081002, 12 CHG PMP START PB** \_\_\_\_\_

**CS-5151403, 13 CHG PMP STRT PB** \_\_\_\_\_

- 2.4.18 **Verify** RCS pressure at or trending to 2235 psig:

**1PI-709A, U1 LOOP A RCS WIDE RANGE PI (Train A)**

**1PI-709B, U1 LOOP A RCS WIDE RANGE PI (Train B)**

**1PI-710A, U1 LOOP B RCS WIDE RANGE PI (Train A)**

**1PI-710B, U1 LOOP B RCS WIDE RANGE PI (Train B)** \_\_\_\_\_

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	NUMBER: <b>1C1.3 AOP1</b>
		REV: <b>6</b>
		Page 10 of 16

2.4.19 IF RCS pressure is NOT at or trending to 2235 psig,  
THEN perform the following:

A. Transfer the pressurizer heaters to "LOCAL:"

CS-51001, PRZR HTRS GRP A LCL/REM SLCTR \_\_\_\_\_

CS-51501, PRZR HTRS GRP B LCL/REM SLCTR \_\_\_\_\_

B. Locally control pressurizer heaters to maintain RCS  
pressure 2185 - 2285 psig.

CS-51002, PRZR HTRS GRP A ON/OFF PB \_\_\_\_\_

CS-51502, PRZR HTRS GRP B ON/OFF PB \_\_\_\_\_

2.4.20 Verify plant electrical status per Appendix A. \_\_\_\_\_

**CAUTION:**

IF RCS ACTIVITY IS  $> 1 \times 10^4 \mu\text{Ci/CC}$  OR R-9  $> 10\text{R/HR}$ ,  
THEN DO NOT ESTABLISH LETDOWN.

**NOTE:**

Raising pressurizer level above 18% Cold Cal will clear the  
letdown isolation signal.

**NOTE:**

Pushbuttons for the letdown isolation valves must be held  
for 20 seconds to ensure the valve is fully OPEN and will  
remain OPEN.

2.4.21 As necessary, establish letdown:

A. Depress and hold pushbuttons (2) for the letdown  
isolation control valves until they are fully OPEN:

CS-19465, LTDN LINE ISOL TRN B CV-31255 \_\_\_\_\_

CS-19464, LTDN LINE ISOL TRN A CV-31226 \_\_\_\_\_



<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	NUMBER: <b>1C1.3 AOP1</b>
		REV: <b>6</b>
		Page 11 of 16

(Step 2.4.21 continued from previous page. . .)

- B. **Place** the letdown orifice isolation valve  
LOCAL/REMOTE switch in "LOCAL:"

**CS-51009, LTDN ORIFICE ISOL VLV CV-31325**

OR

**CS-51011, LTDN ORIFICE ISOL VLV CV-31326**

OR

**CS-51013, LTDN ORIFICE ISOL VLV CV-31327** \_\_\_\_\_

- C. **OPEN** the letdown orifice isolation control valves as  
necessary to control pressurizer level:

**CS-51010, LTDN ORIFICE ISOL VLV CV-31325**

OR

**CS-51012, LTDN ORIFICE ISOL VLV CV-31326**

OR

**CS-51014, LTDN ORIFICE ISOL VLV CV-31327** \_\_\_\_\_

- 2.4.22** Locally trip all main feedwater pump breakers:

**BKR 11-3, 11 FW PUMP** \_\_\_\_\_

**BKR 12-3, 12 FW PUMP** \_\_\_\_\_

- 2.4.23** Locally verify the main FWP aux lube oil pumps have  
started:

**11 Main FWP Aux Lube Oil Pump** \_\_\_\_\_

**12 Main FWP Aux Lube Oil Pump** \_\_\_\_\_

- 2.4.24** Verify at least one condensate pump is running. \_\_\_\_\_

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b>
		<b>1C1.3 AOP1</b>
		<b>REV: 6</b>
		Page 12 of 16

**2.4.25** Locally trip the other two condensate pump breakers:

**BKR 13-7, 11 CONDENSATE PUMP** \_\_\_\_\_

**BKR 14-6, 12 CONDENSATE PUMP** \_\_\_\_\_

**BKR 14-7, 13 CONDENSATE PUMP** \_\_\_\_\_

**2.4.26** Locally verify CV-31122, COND RECIRC SPRAY CV, is OPEN. \_\_\_\_\_

**2.4.27** Declare at least an ALERT Emergency Classification and carry out actions per F3 from the TSC. \_\_\_\_\_

SM

**2.4.28** Monitor the Source Range detectors to verify shutdown condition:

**1NI-51B, EXCORE DETECTION TRN A REMOTE INDICATOR**

**1NI-51C, EXCORE DETECTION TRN B REMOTE INDICATOR** \_\_\_\_\_

**2.4.29** Maintain stable plant conditions. \_\_\_\_\_

**2.4.30** Determine the required boration prior to Xenon level decreasing below the pre-trip concentration:

A. Present RCS Boron (BCMS) \_\_\_\_\_  
 Required (Per Fig. C1-10A) \_\_\_\_\_  
 Change in Boron (ppm) \_\_\_\_\_

B. Multiply the desired ppm change by 1.75 to determine the number of gallons of boric acid needed:

\_\_\_\_\_ ppm X 1.75 = \_\_\_\_\_ gal

C. Divide the number of gallons to be added by 12 to determine the time required to add at 12 gpm:

\_\_\_\_\_ gal/12 gpm = \_\_\_\_\_ min

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	NUMBER: <b>1C1.3 AOP1</b>
		REV: <b>6</b>
		Page 13 of 16

(Step 2.4.30 continued from previous page. . .)

- D. **Place** the desired boric acid transfer pump LOCAL/REMOTE switch in "LOCAL:"

**CS-51007, 11 BA XFER PMP LCL/REM**

OR

**CS-51507, 12 BA XFER PMP LCL/REM**

- E. **Start** the desired boric acid transfer pump in FAST SPEED by depressing the appropriate control switch:

**CS-51008-02, 11 BA XFER PMP RNNG FAST PB**

OR

**CS-51508-02, 12 BA XFER PMP RNNG FAST PB**

- F. IF power is available, THEN perform the following at the Emergency Boration Valve MV-32086 Local Control Panel:

1. **Place CS-19580, EMERG BOR TO CHG PMPS ISOL MV-32086 LCL/REM, in "LOCAL."**

2. **Place CS-19581, EMERG BOR TO CHG PMPS ISOL MV-32086, in "OPEN."**

3. **Verify MV-32086 is OPEN.**

4. **Locally throttle VC-11-58, EMERG BORATION TO CHG PMP SUCT THROTTLE VLV, to obtain 12 gpm as indicated on local flowmeter 1FI-113. Begin timing the boric acid addition.**

5. **When desired amount of boric acid has been added, place CS-19581, EMERG BOR TO CHG PMPS ISOL MV-32086, in "CLOSE."**

6. **Verify MV-32086 is CLOSED.**

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b> <b>1C1.3 AOP1</b>
		<b>REV:</b> <b>6</b>
		<b>Page 14 of 16</b>

(Step 2.4.30 continued from previous page. . .)

- G. IF power is NOT available, THEN locally perform the following:
1. **OPEN** breaker **1L2-B4**, EMERG BORATION TO CHG PMPS MV-32086. \_\_\_\_\_
  2. Manually **OPEN MV-32086**, EMERG BORATION TO CHG PUMP SUCT. \_\_\_\_\_
  3. Locally **throttle VC-11-58**, EMERG BORATION TO CHG PMP SUCT THROTTLE VLV, to obtain 12 gpm as indicated on local flowmeter **1FI-113**. **Begin** timing the boric acid addition. \_\_\_\_\_
  4. When desired amount of boric acid has been added (time determined in 2.4.30.C above), THEN manually **CLOSE MV-32086**, EMERG BORATION TO CHG PUMP SUCT. \_\_\_\_\_

## 2.5 Recovery Actions

- 2.5.1 The Unit is now in Mode 3, Hot Shutdown (**IT.S. Hot Standby**) condition. **Evaluate** the cause of the Control Room evacuation and **correct** the environmental condition. \_\_\_\_\_
- 2.5.2 **Consult** 1ES-0.1, Reactor Trip Recovery, for any additional actions to be taken with the Plant Electrical Systems. \_\_\_\_\_
- 2.5.3 **Return** to the Control Room as soon as practical. \_\_\_\_\_

## 3.0 ATTACHMENTS

Appendix A - Plant Electrical Lineup Following Reactor Trip and Control Room Evacuation

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b> <b>1C1.3 AOP1</b>
		<b>REV:</b> <b>6</b>
		<b>Page 15 of 16</b>

#### **4.0 REFERENCES**

##### **4.1 Developmental References**

**4.1.1**    1E-0, Reactor Trip or Safety Injection

**4.1.2**    1ES-0.1, Reactor Trip Recovery

##### **4.2 Implementing References**

**4.2.1**    Figure C1-10A, Hot Shutdown Boron Concentration

**4.2.2**    F3, Emergency Plan Implementing Procedures

**4.2.3**    1ES-0.1, Reactor Trip Recovery

<b>C</b>	<b>SHUTDOWN FROM OUTSIDE THE CONTROL ROOM - UNIT 1</b>	<b>NUMBER:</b> <b>1C1.3 AOP1</b>
		<b>REV:</b> <b>6</b>
		<b>Page 16 of 16</b>

**Appendix A Plant Electrical Lineup Following Reactor Trip and Control Room Evacuation****Bus 11 & 12 Status Check:****BKR 11-4, BUS 11 1M SUPPLY BREAKER****OPEN**\_\_\_\_\_**BKR 11-1, BUS 11 1R SUPPLY BREAKER****CLOSED**\_\_\_\_\_**BKR 12-4, BUS 12 1M SUPPLY BREAKER****OPEN**\_\_\_\_\_**BKR 12-1, BUS 12 1R SUPPLY BREAKER****CLOSED**\_\_\_\_\_**Verify 11/12 RCP Running:****BKR 11-2, 11 RCP****CLOSED**\_\_\_\_\_**Bkr Amps**\_\_\_\_\_**BKR 12-2, 12 RCP****CLOSED**\_\_\_\_\_**Bkr Amps**\_\_\_\_\_**Bus 13 & 14 Status Check:****BKR 13-9, BUS 13 1M SUPPLY BREAKER****OPEN**\_\_\_\_\_**BKR 13-1, BUS 13 1R SUPPLY BREAKER****CLOSED**\_\_\_\_\_**BKR 14-9, BUS 14 1M SUPPLY BREAKER****OPEN**\_\_\_\_\_**BKR 14-4, BUS 14 1R SUPPLY BREAKER****CLOSED**\_\_\_\_\_

---

JPM B.2.b

SRO/RO

Copy 1

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Transfer Unit 1 Auxiliary Feedwater  
Pump Suction from the CST to  
Cooling Water per C28.1 AOP2Job Performance Measure No: SRO/RO  
B.2.bK/A Reference: 061 K4.01 [4.1/4.2]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X Actual Performance \_\_\_\_ Classroom \_\_\_\_ Simulator \_\_\_\_ Plant X**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

- Unit 1 reactor was tripped due to a small break LOCA and ES-1.1, "Post LOCA Cooldown and Depressurization" is in progress.
- The 11 Turbine-Driven Auxiliary Feedwater Pump (TD AFWP) is the only AFW pump available and running (an AFW pump is needed for the present plant condition).
- CST level is just above four feet and the "CONDENSATE STORAGE TANK LO LO LVL" annunciator is in.
- MCC 1A1 has been lost due to an electrical fault.
- You are an extra local operator.

Task Standard: 11 Turbine-Driven Auxiliary Feedwater Pump suction transferred from the Condensate Storage Tank to the Cooling Water system.

Required Materials: C28.1 AOP2, "Loss of Condensate Supply to Auxiliary Feedwater Pump Suction", Steps 2.5 and 2.6, Rev 4

General References: C28.1 AOP2, "Loss of Condensate Supply to Auxiliary Feedwater Pump Suction", Rev 4

**Initiating Cues:**

The Unit 1 Shift Supervisor directs you to:

- Transfer the 11 TD AFWP from the CST to the Cooling Water supply per C28.1 AOP2, "Loss of Condensate Supply to Auxiliary Feedwater Pump Suction" beginning at Step 2.4.5.
- Since power has been lost to MCC 1A1, the suction MOVs in Step 2.4.5 for the 11 TD AFWP are to be manually aligned locally at the valves instead of from the Control Room.
- After completing all local alignments, open the MCC breakers at MCC 1A1 for the MOVs in Step 2.4.5 for the 11 TD AFWP.

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 20 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

  1   Performance step: **CRITICAL STEP** SAT/UNSAT

**Manually OPEN MV-32025, "11 TD AFW PUMP SUCTION COOLING WATER SUPPLY MOV".**

Standard:

**Manually OPENS MV-32025, "11 TD AFW PUMP SUCTION COOLING WATER SUPPLY MOV".**

Comment:

**CUES:**

- If applicant asks for an electrician to relieve the torque on the valve actuator per 5AWI 15.5.1, inform him that this is an emergency situation and the Shift Supervisor has waived this requirement.
- Handwheel is engaged, valve stem indicator is moving up, and moves up to top of slot.

---

  2   Performance step: **CRITICAL STEP** SAT/UNSAT

**Manually CLOSE MV-32333, "11 TD AFW PUMP SUCTION FROM CST MOV".**

Standard:

**Manually CLOSES MV-32333, "11 TD AFW PUMP SUCTION FROM CST MOV".**

Comment:

**CUE: Handwheel is engaged, valve stem is moving down, and moves downward to wear mark on stem.**

---

  3   Performance step: SAT/UNSAT

**CLOSE CL-115-3, "11 TD AFW PMP COOLING WTR SUPPLY DNSTRM VENT".**

Standard:

**CLOSES CL-115-3, "11 TD AFW PMP COOLING WTR SUPPLY DNSTRM VENT".**

Comment:

**CUE: CL-115-3 is closed.**

---

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

4 Performance step: *(Critical Step)* SAT/UNSAT

**TRANSFER** the 11 TD AFWP recirculation flow to Cooling Water:

- **OPEN** AF-32-3, "11 TD AFWP RECIRC TO UNIT 1 COOLING WATER HEADER"
- **CLOSE** AF-33-1, "11 TD AFWP RECIRC TO 11 CST"

Standard:

**OPENS** AF-32-3 and **CLOSES** AF-33-1 to transfer 11 TD AFWP recirc from the Unit 1 CST to the Cooling Water header.

Comment:

**EVALUATOR NOTE:** Valve AF-33-1 has a RED tag.

**CUE:** AF-32-3 is open after simulating manipulation of valve.  
AF-33-1 is closed after simulating manipulation of valve.

---

5 Performance step: SAT/UNSAT

**OPEN** MCC breakers at MCC 1A1 for the following valves:

- MV-32025, "11 TD AFW PUMP SUCTION COOLING WATER SUPPLY MOV"
- MV-32333, "11 TD AFW PUMP SUCTION FROM CST MOV"

Standard:

**LOCATES** and **OPENS** MCC 1A Bus 1 breakers for MV-32025 and MV-32333:

- MV-32025, at MCC 1A Bus 1, Cell A2
- MV-32333, at MCC 1A Bus 1, Cell B2

Comment:

**CUES:**

- MCC breaker for MV-32025 is OPEN after simulating deenergization of MCC.
- MCC breaker for MV-32333 is OPEN after simulating deenergization of MCC.

---

**Terminating cue:** WHEN the MCC breakers at MCC 1A1 for the MOVs for the 11 TD AFWP suction supply have been deenergized.

---

## VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

**Initial Conditions:**

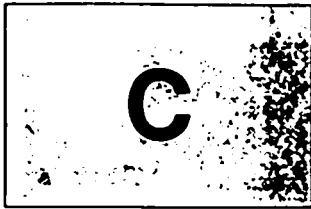
- Unit 1 reactor was tripped due to a small break LOCA and ES-1.1, "Post LOCA Cooldown and Depressurization" is in progress.
- The 11 Turbine-Driven Auxiliary Feedwater Pump (TD AFWP) is the only AFW pump available and running (an AFW pump is needed for the present plant condition).
- CST level is just above four feet and the "CONDENSATE STORAGE TANK LO LO LVL" annunciator is in.
- MCC 1A1 has been lost due to an electrical fault.
- You are an extra local operator.

**Initiating Cues:**

The Unit 1 Shift Supervisor directs you to:

- Transfer the 11 TD AFWP from the CST to the Cooling Water supply per C28.1 AOP2, "Loss of Condensate Supply to Auxiliary Feedwater Pump Suction" beginning at Step 2.4.5.
- Since power has been lost to MCC 1A1, the suction MOVs in Step 2.4.5 for the 11 TD AFWP are to be manually aligned locally at the valves instead of from the Control Room.
- After completing all local alignments, open the MCC breakers at MCC 1A1 for the MOVs in Step 2.4.5 for the 11 TD AFWP.



	<b>LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION</b>	NUMBER: <b>C28.1 AOP2</b>
		REV: <b>4</b>
		Page 1 of 9

**CONTINUOUS USE**

- *Continuous use of procedure required.*
- *Read each step prior to performing.*
- *Mark off steps as they are completed.*
- *Procedure SHALL be at the work location.*

O.C. REVIEW DATE: <b>4/28/99</b>	OWNER: <b>P. Valtakis</b>	EFFECTIVE DATE <b>6/18/01</b>
-------------------------------------	------------------------------	----------------------------------

<b>C</b>	<b>LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION</b>	NUMBER: <b>C28.1 AOP2</b>
		REV: <b>4</b>
		Page 2 of 9

**TABLE OF CONTENTS**

<b>Section</b>	<b>Title</b>	<b>Page</b>
1.0	PURPOSE.....	3
2.0	PROCEDURES.....	3
2.1	Symptoms.....	3
2.2	Automatic Actions.....	3
2.3	Immediate Manual Actions.....	3
2.4	Subsequent Manual Actions.....	4
2.5	Recovery Actions.....	9
3.0	ATTACHMENTS.....	9
4.0	REFERENCES.....	9
4.1	Developmental References.....	9
4.2	Implementing References.....	9

<b>C</b>	<b>LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION</b>	NUMBER: <b>C28.1 AOP2</b>
		REV: <b>4</b>
		Page 3 of 9

## 1.0 PURPOSE

This procedure addresses a decreasing condensate storage tank (CST) inventory necessary to sustain operation of the auxiliary feedwater pumps. Suction to the AFW pumps is lost when condensate storage tank level is approximately four feet.

## 2.0 PROCEDURES

### 2.1 Symptoms

- 2.1.1 Low or decreasing CST level as indicated by LI-4122302 and LI-4122303 [LI-4169802 and LI-4169803]
- 2.1.2 Annunciator 47009-0603 [47509-0603], CONDENSATE STORAGE TANK LO LVL
- 2.1.3 Annunciator 47010-0106 [47510-0101], CONDENSATE STORAGE TANK LO LO LVL
- 2.1.4 Low suction/low discharge pressure trip of an AFW pump.
- 2.1.5 Locally observed cavitation of a running AFW pump.

### 2.2 Automatic Actions

Auto trip of the running AFW pump on low suction/low discharge pressure.

### 2.3 Immediate Manual Actions

NONE



<b>C</b>	<b>LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION</b>	NUMBER: <b>C28.1 AOP2</b>
		REV: <b>4</b>
		Page 4 of 9

## 2.4 Subsequent Manual Actions

<b>NOTE:</b>	If, for any reason, suction is lost to a running AFW pump, that pump should be immediately shutdown and have a suction supply lined up to it (use cooling water only in an emergency).
<b>NOTE:</b>	If conditions warrant, consider running both water treatment trains in parallel for maximum flow. Auto trip functions of the water treatment system may be bypassed with proper authorization.

**2.4.1** IF water treatment is available, THEN start per C32 if not already running.

- A. At Control Room Panel A, **OPEN** the demin supply to the affected CST:

**CV-31149, DEMINERALIZER TO 11 COND  
STORAGE TNK, using CS-46146**

OR

**CV-31151, DEMINERALIZER TO 21 COND  
STORAGE TNK, using CS-46581**

- B. IF desired to add water directly to the CST outlet, THEN OPEN one or both of the demin supplies to the Condensate System from Panel 70000, Water Treatment Aux Control Panel (695' el Unit 1 Turbine Bldg.):

**CV-31150, A DMIN TO UNIT 1 COND SYS DSCH  
VLV CV, using CS-70014**

**CV-31152, B DMIN M-U TO 21 COND SYS CV,  
using CS-70015**

<b>C</b>	<b>LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION</b>	NUMBER:
		<b>C28.1 AOP2</b>
		REV: <b>4</b>
		Page 5 of 9

2.4.2 IF a condensate pump is running, THEN condensate can be transferred from the condenser to the CST:

- A. CLOSE CD-45-4 [2CD-45-4], COND/CDSR SPRAY DUMP TO CLG WTR STANDPIPE RTRN. \_\_\_\_\_
- B. OPEN CD-72-1 [2CD-72-1], COND DUMP TO CST. \_\_\_\_\_
- C. OPEN CV-31123 [CV-31126], CDSR DUMP TO CLG WTR DISCH, using HC-43084 [HC-43584]. \_\_\_\_\_

2.4.3 IF the condenser spray pump is available THEN condensate can be transferred from the condenser hot well to the CST. The line up is as follows:

- A. CLOSE CD-57-1 [2CD-60-1], A CDSR SPRAY SPLY. \_\_\_\_\_
- B. CLOSE CD-57-2 [2CD-60-2], B CDSR SPRAY SPLY. \_\_\_\_\_
- C. CLOSE CD-45-4 [2CD-45-4], COND/CDSR SPRAY DUMP TO CLG WTR STANDPIPE RTRN. \_\_\_\_\_
- D. OPEN CD-59-5 [2CD-61-5], CDSR SPRAY TO CD PMP DISCH. \_\_\_\_\_
- E. OPEN CD-72-1 [2CD-72-1], COND DUMP TO CST. \_\_\_\_\_
- F. OPEN CD-45-3 [2CD-45-3], CDSR SPRAY TO CLG WTR STANDPIPE. \_\_\_\_\_
- G. Start 11 [21] Condenser Spray Pump per 1[2]C28.5. \_\_\_\_\_

<b>C</b>	<b>LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION</b>	NUMBER: <b>C28.1 AOP2</b>
		REV: <b>4</b>
		Page 6 of 9

- 2.4.4 IF sufficient inventory is available in an ADT Monitor Tank  
THEN transfer to the CST as follows:

**NOTE:**

A full ADT Monitor tank has a usable volume of 4500 gallons. In an emergency, it may not be feasible to attempt to transfer this small amount of available water.

- A. At the SGB Programmable Controller, **check**  
**CV-31787**, 1/2 RAD WASTE BLDG DSCH TO RVR  
CV, is CLOSED. \_\_\_\_\_
- B. At the Rad Wste Bldg Control Panel, **check** the  
following valves are CLOSED: \_\_\_\_\_
1. **CV-31791**, 121/122 ADT MNTR TNK PMP  
DSCH TO CLCTN TNK CV. \_\_\_\_\_
  2. **CV-31797**, 122 ADT MNTR TNK PMP DSCH  
TO ADT ION EXGR CV. \_\_\_\_\_
  3. **CV-31800**, 121 ADT MNTR TNK PMP DSCH  
TO ADT ION EXGR CV. \_\_\_\_\_
  4. **CV-31801**, 121 ADT MNTR TNK PMP RCRC  
CV. \_\_\_\_\_
  5. **CV-31802**, 122 ADT MNTR TNK PMP RCRC  
CV. \_\_\_\_\_
  6. **CV-31809**, 121/122 ADT COND RCVR PMP  
DSCH ISOL TO RVR CV. \_\_\_\_\_
- C. At the Rad Waste Bldg Control Panel **OPEN**  
**CV-31790**, 121/122 ADT MNTR TNK DSCH TO  
COND STOR TNK CV. \_\_\_\_\_
- D. At the Rad Waste Bldg Control Panel, **OPEN** the  
appropriate ADT monitor tank pump discharge valve:  
**CV-31799**, 121 ADT MNTR TNK PMP DISCH CV  
OR  
**CV-31798**, 122 ADT MNTR TNK PMP DISCH CV \_\_\_\_\_

<b>C</b>	<b>LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION</b>	NUMBER: <b>C28.1 AOP2</b>
		REV: <b>4</b>
		Page 7 of 9

E. At 11 Condensate Recycle Pump, **OPEN DE-29-5**,  
FROM ADT MONITOR TK PMPS 11 COND  
RECYCLE PUMP.

F. **Start** the appropriate ADT Monitor Tank Pump,  
selected in Step "D" above.

G. At the completion of the transfer, **stop** the running  
ADT Monitor Tank Pump.

H. **CLOSE** the following valves:

**DE-29-5**, FROM ADT MONITOR TK PMPS 11  
COND RECYCLE PUMP

**CV-31790**, 121/122 ADT MNTR TNK DSCH TO  
COND STOR TNK CV

**CV-31798**, 122 ADT MNTR TNK PMP DISCH CV

**CV-31799**, 121 ADT MNTR TNK PMP DISCH CV

**2.4.5** IF all other actions fail, THEN as a last resort **perform** the  
following:

A. **OPEN** the cooling water supply to the desired AFW  
pump suction:

**MV-32025**, 11 TD AFW PMP SUCT CL SPLY MV,  
using **CS-46433**

**MV-32027**, 12 MD AFW PMP SUCT CL SPLY MV,  
using **CS-46434**

**MV-32026**, 21 MD AFW PMP SUCT CL SPLY MV,  
using **CS-46767**

**MV-32030**, 22 TD AFW PMP SUCT CL SPLY MV,  
using **CS-46883**

<b>C</b>	<b>LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION</b>	NUMBER: <b>C28.1 AOP2</b>
		REV: <b>4</b>
		Page 8 of 9

- B. **CLOSE** the CST supply to the desired AFW pump suction:

**MV-32333**, 11 TDAFW PMP SUCT FROM CST MV,  
using **CS-46420**

**MV-32335**, 12 MDAFW PMP SUCT FROM CST MV,  
using **CS-46422**

**MV-32336**, 21 MDAFW PMP SUCT FROM CST MV,  
using **CS-46766**

**MV-32345**, 22 TDAFW PMP SUCT FROM CST MV,  
using **CS-46768**

- C. **CLOSE** the associated AFWP suction vent valve:

**CL-115-3**, 11 TD AFW PMP CLG WTR SPLY  
DNSTRM VENT

**CL-115-4**, 12 MD AFW PMP CLG WTR SPLY  
DNSTRM VENT

**2CL-115-3**, 21 MD AFW PMP CLG WTR SPLY  
DNSTRM VENT

**2CL-115-4**, 22 TD AFW PMP CLG WTR SPLY  
DNSTRM VENT

- 2.4.6 **Transfer** the associated AFW pump recirc flow to cooling water:

- A. **OPEN** the AFW pump recirc valves to cooling water:

**AF-32-3**, 11 TD AFW PMP RECIRC TO UNIT 1 CLG  
WTR HDR

**AF-32-4**, 12 MD AFW PMP RECIRC TO UNIT 1 CLG  
WTR HDR

**2AF-32-3**, 21 MD AFW PMP RECIRC TO U2 CLG  
WTR HDR

**2AF-32-4**, 22 TD AFW PMP RECIRC TO U2 CLG  
WTR HDR

<b>C</b>	<b>LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION</b>	NUMBER: <b>C28.1 AOP2</b>
		REV: <b>4</b>
		Page 9 of 9

- B. **CLOSE** the associated AFW pump recirc valves to the CST:

**AF-33-1, 11 TD AFW PMP RECIRC TO 11 CST**

**AF-33-2, 12 MD AFW PMP RECIRC TO 11 CST**

**2AF-33-1, 21 MD AFW PMP RECIRC TO 21 CST**

**2AF-33-2, 22 TD AFW PMP RECIRC TO 21 CST**

- 2.4.7 Observe** the running AFW pump discharge pressure and flow. IF inadequate (less than 850 psig and 180 gpm), THEN check the Cooling Water System to see if non-essential loads may be shed.

## **2.5 Recovery Actions**

IF cooling water was lined up to an AFW pump, THEN flush that pump with condensate after CST level is restored AND transfer recirc flow back to the CST.

## **3.0 ATTACHMENTS**

NONE

## **4.0 REFERENCES**

### **4.1 Developmental References**

**4.1.1 NF-39220, Condensate System - Unit One**

**4.1.2 NF-39221, Condensate System - Unit Two**

**4.1.3 NF-39236, Liquid Waste Disposal**

### **4.2 Implementing References**

**C28, Condensate Feedwater System Operating Procedure**

~~9/10~~  
9/10 JPM B 2.C

Facility: Prairie Island

Task No: \_\_\_\_\_

Task Title: Cross-Connect U2 to U1 CC  
System per 1CC14 AOP3

Job Performance Measure No: SRO/ROB.2.c

K/A Reference: 008A2.01 [3.3/3.6]

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

**Method of testing:**Simulated Performance X Actual Performance \_\_\_\_ Classroom \_\_\_\_ Simulator \_\_\_\_ Plant X**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

- The 12 CC pump failed due to high bearing vibration while the 11 CC pump was out-of service for routine maintenance. There is currently no CC flow on Unit 1.
- Unit 1 is at 70% power and decreasing due to being in Technical Specification 3.0.C.
- 1C14 AOP3, is completed through step 2.4.3, the 22 CC has been started.

Task Standard: 22 CC pump is running and supplying cooling water to Unit 1.

Required Materials: Field copy of 1C14 AOP3, "Cross Connecting Unit 2 to Unit 1 Component Cooling System," Rev. 3, C1.1.14-1, "Unit 1 Component Cooling System," Rev. 18, and C1.1.14-2, "Unit 2 Component Cooling System," Rev. 22.

General References: 1C14 AOP3, "Cross Connecting Unit 2 to Unit 1 Component Cooling System," Rev. 3, C1.1.14-1, "Unit 1 Component Cooling System," Rev. 18, and C1.1.14-2, "Unit 2 Component Cooling System," Rev. 22.

**Initiating Cues:**

- The SS directs you to cross connect the Unit 2 CC system to Unit 1, 1C14 AOP3, is completed through step 2.4.3, the 22 CC has been started.

Time Critical Task: YES/NOAlternate Path: YES/NOValidation Time: 25 Minutes

Time Started \_\_\_\_\_

Time Finished: \_\_\_\_\_



## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

1 Performance step:

SAT/UNSAT

**EVALUATOR NOTE:** MCC 1K1-B4 should already be out-of-service off due to maintenance described in the initial conditions.

**PLACE** the following breakers to "ON:"

**MCC 1K1-B4**, 11 CC PMP SUCT MV-32200

**MCC 1KA2-E2**, 12 CC PMP SUCT MV-32201

Standard:

**MCC 1KA2-E2**, 12 CC PMP SUCT MV-32201 is on.

Comment:

**CUE:** When at the breaker or if asked MCC 1K1-B4 is already out-of-service off.

2 Performance step:

SAT/UNSAT

**EVALUATOR NOTE:** MV-32200 should already be out-of-service closed due to maintenance described in the initial conditions..

Request the control room operator **CLOSE** MV-32200, 11 CC SURGE TNK TO 11 CC PUMP, using CS-46033.

Standard:

MV-32200, 11 CC SURGE TNK TO 11 CC PUMP is closed.

Comment:

**CUE:** As the control room operator report that MV-32200 is already out-of-service closed.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

3 Performance step: *(Critical Step)* SAT/UNSAT

Request the control room operator **CLOSE** MV-32201, 11 CC SURGE TNK TO 12 CC PUMP, using CS-46035.

Standard:

MV-32201, 11 CC SURGE TNK TO 12 CC PUMP is closed.

Comment:

**CUE:** As the control room operator report that MV-32201 is closed.

4 Performance step: *(Critical Step) \** SAT/UNSAT

**EVALUATOR NOTE:** MCC 1K1-B4 should already be out-of-service off.

**PLACE** the following breakers to "OFF:"

**MCC 1K1-B4**, 11 CC PMP SUCT MV-32200

**\* MCC 1KA2-E2**, 12 CC PMP SUCT MV-32201

Standard:

**MCC 1K1-B4**, 11 CC PMP SUCT MV-32200 and **MCC 1KA2-E2**, 12 CC PMP SUCT MV-32201 are off

Comment:

**CUE:** MCC 1K1-B4 is already out-of-service off.

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

5 Performance step:

SAT/UNSAT

IF **desired**, THEN attach secure cards for SS to the following:

**CS-46033**, 11 CC PMP SUCT MV-32200

**CS-46035**, 12 CC PMP SUCT MV-32201

Standard:

This is a control room function. Operator determines that additional secure cards are not required.

Comment:

**CUE:** SS wants the lineup completed. Secure cards will be hung later.

6 Performance step:

*(Critical Step)*

SAT/UNSAT

**OPEN** the CC suction and discharge cross-ties:

**CC-1-15**, U1/U2 CC PMPS SUCT X-TIE

**CC-1-16**, U1/U2 CC PMPS DISCH X-TIE

Standard:

**CC-1-15**, U1/U2 CC PMPS SUCT X-TIE and **CC-1-16**, U1/U2 CC PMPS DISCH X-TIE are open.

Comment:

**CUE:** Many of the valves in this procedure are difficult to find. If the candidate states they would have to get the mechanical lineup to locate the valve give the candidate a copy of either C1.1.14-1 or C1.1.14-2 as appropriate.

**EVALUATOR NOTE:**

**CC-1-15** located at south end of the 21 CC Hx and is required to be turned **CLOCKWISE** as the operator faces the valve to **OPEN**.

**CC-1-16** located between south end of 12 & 21 CC Hx's

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

7 Performance step: *(Critical Step)* SAT/UNSAT

**OPEN** the suction and discharge cross-connects for the CC pump started in Step 2.4.2

22 CC Pump

**2CC-1-12**, 22 CC PMP SUCT X-TIE

**2CC-1-14**, 22 CC PMP DISCH X-TIE

Standard:

**2CC-1-12**, 22 CC PMP SUCT X-TIE and **2CC-1-14**, 22 CC PMP DISCH X-TIE are open.

Comment:

**CUE:** None.

**EVALUATOR NOTE:**

2CC-1-12 located near 22 CC pump above AFW flow gauges.

2CC-1-14 located midway between 22 & 12 Hx's

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

8 Performance step:

SAT/UNSAT

Complete 11 CC Surge Tank isolation:

**CLOSE CC-30-12, 11 CC PMP RECIRC LINE**

**CLOSE CC-30-11, 12 CC PMP RECIRC LINE**

**CLOSE CC-27-8, 11 CC SURGE TNK X-TIE ISOL**

Standard:

CC-30-12, 11 CC PMP RECIRC LINE, CC-30-11, 12 CC PMP RECIRC LINE, and CC-27-8, 11 CC SURGE TNK X-TIE ISOL are closed.

Comment:

**CUE:** None.

**EVALUATOR NOTE:**

CC-30-12, located 8' above 11 CC pump

CC-30-11, located by discharge valve of 12 CC pump

CC-27-8, located near CC surge tank 755' Aux Building

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

9 Performance step: ~~**CRITICAL STEP**~~ *N/A* *AP* SAT/UNSAT

**VERIFY** Unit 1 CC pump suction and discharge cross-connects are OPEN:

**CC-1-13**, 11 CC PMP DISCH X-TIE

**CC-1-14**, 12 CC PMP DISCH X-TIE

**CC-1-11**, 11 CC PMP SUCT X-TIE

**CC-1-12**, 12 CC PMP SUCT X-TIE

Standard:

**CC-1-11, 12, 13, and 14** are verified open.

Comment:

**CUE:** None.

**EVALUATOR NOTE:**

CC-1-13 located between south end of 11 and 21 CC Hx's.

CC-1-14 located between south end of 12 and 22 CC Hx's

CC-1-11 located south end of 11 CC Hx

CC-1-12 located south end of 22 CC Hx

## PERFORMANCE INFORMATION

(Denote critical steps with **BOLD**)

---

10 Performance step: SAT/UNSAT

IF adequate CC flow is not being provided to Unit 1, THEN **CLOSE** the CC heat exchanger inlet valve associated with the CC pump started in Step 2.4.2:

**2CC-1-5, 21 CC HX INLT**

OR

**2CC-1-6, 22 CC HX INLT**

Standard:

**2CC-1-6, 22 CC HX INLT closed.**

Comment:

**CUE:** If asked the control room reports that adequate CC flow is not yet being provided to Unit 1.

**EVALUATOR NOTE:**

2CC-1-6 located at the north end of the CC Hx's

---

**Terminating cue:** When 2CC-1-6 is closed the JPM has ended.

VERIFICATION OF COMPLETION

Job Performance Measure No. \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_



**Initial Conditions:**

- The 12 CC pump failed due to high bearing vibration while the 11 CC pump was out-of service for routine maintenance. There is currently no CC flow on Unit 1.
- Unit 1 is at 70% power and decreasing due to being in Technical Specification 3.0.C.
- 1C14 AOP3, is completed through step 2.4.3, the 22 CC has been started.

**Initiating Cues:**

- The SS directs you to cross connect the Unit 2 CC system to Unit 1, 1C14 AOP3, is completed through step 2.4.3, the 22 CC has been started.

<b>C</b> Section	TITLE	NUMBER:
	<b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b>	<b>1C14 AOP3</b>
		REV: <b>3</b>
		Page 1 of 11

<b>CONTINUOUS USE</b>
<ul style="list-style-type: none"><li>• <i>Continuous use of procedure required.</i></li><li>• <i>Read each step prior to performing.</i></li><li>• <i>Mark off steps as they are completed.</i></li><li>• <i>Procedure SHALL be at the work location.</i></li></ul>

O.C. REVIEW DATE: <i>9/5/96</i>	REVIEWED BY: <i>Larnicke</i>	DATE: <i>7-3-00</i>
	APPROVED BY: <i>Peter Stobbe</i>	DATE: <i>7/5/00</i>

<div style="text-align: center;"> <b>C</b> Section         </div>	<div style="text-align: center;">           TITLE   <b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b> </div>	NUMBER: <b>1C14 AOP3</b>
		REV: <b>3</b>
		Page 2 of 11

## TABLE OF CONTENTS

Section	Title	Page
1.0	PURPOSE .....	3
2.0	PROCEDURES .....	3
2.1	Symptoms .....	3
2.2	Automatic Actions .....	3
2.3	Immediate Manual Actions .....	3
2.4	Subsequent Manual Actions .....	3
2.5	Recovery Actions .....	7
3.0	ATTACHMENTS .....	11
4.0	REFERENCES .....	11
4.1	Developmental References .....	11
4.2	Implementing References .....	11

<b>C</b> Section	TITLE <b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER: <b>1C14 AOP3</b>
		REV: <b>3</b>
		Page 3 of 11

## 1.0 PURPOSE

This procedure covers the necessary steps to supply Component Cooling from Unit 2 to Unit 1. This would only be necessary if both CC pumps for Unit 1 were unavailable.

This procedure should only be used when an engineering evaluation has determined that cross-tying the CC systems will in no way impair the integrity of the Unit 2 CC System.

This procedure is classified as an "Infrequently Performed Test or Evolution".

IF shutdown is required by Tech Specs due to the inoperability of CC, THEN refer to F3-2, Classification of Emergencies.

## 2.0 PROCEDURES

### 2.1 Symptoms

CC flow has been lost on Unit 1 and neither CC pump for that unit is available to restore flow.

### 2.2 Automatic Actions

NONE

### 2.3 Immediate Manual Actions

NONE

### 2.4 Subsequent Manual Actions

2.4.1 Conduct a pre-job briefing with the individuals involved in performing and monitoring the cross-connect lineup. The pre-job briefing should include:

- A. Review of the cross-connect lineup.
  - B. Duties and responsibilities of individuals performing and monitoring the cross-connect lineup.
  - C. Communications while performing the cross-connect lineup.
  - D. Senior management expectations.
-

<b>C</b> Section	TITLE	NUMBER:
	<b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b>	<b>1C14 AOP3</b>
		REV: <b>3</b>
		Page 4 of 11

**NOTE:**

Cooling water header pressure decreases when starting a CC pump due to cooling water flow through the CC heat-exchanger. This could result in an auto start of a cooling water pump at the following pressures:

- 121 MD CLG WTR PMP 80 psig
- 12 or 22 DD CLG WTR PMP 75 psig

2.4.2 Start the non-running CC pump on Unit 2.

CS-46539, 21 CC WTR PUMP

OR

CS-46540, 22 CC WTR PUMP

2.4.3 Check cooling water flow to CC heat exchangers.

2.4.4 Place the following breakers to "ON:"

MCC 1K1-B4, 11 CC PMP SUCT MV-32200

MCC 1KA2-E2, 12 CC PMP SUCT MV-32201

2.4.5 CLOSE MV-32200, 11 CC SURGE TNK TO 11 CC PUMP,  
using CS-46033.

2.4.6 CLOSE MV-32201, 11 CC SURGE TNK TO 12 CC PUMP,  
using CS-46035.

2.4.7 Place the following breakers to "OFF:"

MCC 1K1-B4, 11 CC PMP SUCT MV-32200

MCC 1KA2-E2, 12 CC PMP SUCT MV-32201

2.4.8 IF desired, THEN attach secure cards for SS to the following:

CS-46033, 11 CC PMP SUCT MV-32200

CS-46035, 12 CC PMP SUCT MV-32201

<b>C</b> Section	TITLE	NUMBER:
	<b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b>	<b>1C14 AOP3</b>
		REV: <b>3</b>
		Page 5 of 11

**2.4.9 OPEN** the CC suction and discharge cross-ties:

**CC-1-15, U1/U2 CC PMPS SUCT X-TIE** \_\_\_\_\_

**CC-1-16, U1/U2 CC PMPS DISCH X-TIE** \_\_\_\_\_

**2.4.10 OPEN** the suction and discharge cross-connects for the CC pump started in Step 2.4.2:

**21 CC Pump**

**2CC-1-11, 21 CC PMP SUCT X-TIE** \_\_\_\_\_

**2CC-1-13, 21 CC PMP DISCH X-TIE** \_\_\_\_\_

**22 CC Pump**

**2CC-1-12, 22 CC PMP SUCT X-TIE** \_\_\_\_\_

**2CC-1-14, 22 CC PMP DISCH X-TIE** \_\_\_\_\_

**2.4.11 Complete** 11 CC Surge Tank isolation:

**CLOSE CC-30-12, 11 CC PMP RECIRC LINE** \_\_\_\_\_

**CLOSE CC-30-11, 12 CC PMP RECIRC LINE** \_\_\_\_\_

**CLOSE CC-27-8, 11 CC SURGE TNK X-TIE ISOL** \_\_\_\_\_

**2.4.12 Verify** Unit 1 CC pump suction and discharge cross-connects are OPEN:

**CC-1-13, 11 CC PMP DISCH X-TIE** \_\_\_\_\_

**CC-1-14, 12 CC PMP DISCH X-TIE** \_\_\_\_\_

**CC-1-11, 11 CC PMP SUCT X-TIE** \_\_\_\_\_

**CC-1-12, 12 CC PMP SUCT X-TIE** \_\_\_\_\_

<b>C</b> Section	TITLE  <b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER: <b>1C14 AOP3</b>
		REV: <b>3</b>
		Page 6 of 11

- 2.4.13 IF adequate CC flow is not being provided to Unit 1, THEN  
**CLOSE** the CC heat exchanger inlet valve associated with the  
CC pump started in Step 2.4.2.

2CC-1-5, 21 CC HX INLT

OR

2CC-1-6, 22 CC HX INLT

- 2.4.14 **Adjust** CC load to get the running CC pump flow between 250  
and 4000 gpm.

- 2.4.15 **Evaluate** unit status - shutdown may be required by Tech  
Specs.

<div style="text-align: center;"> <b>C</b> Section         </div>	<div style="text-align: center;">           TITLE  <b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b> </div>	NUMBER: <b>1C14 AOP3</b>
		REV: <b>3</b>
		Page 7 of 11

## 2.5 Recovery Actions

2.5.1 IF the CC supply to the Unit 2 loads is jeopardized due to the cross-connect lineup, THEN perform the following:

- A. IF a CC HX inlet valve was CLOSED in Step 2.4.13, THEN **OPEN** the CC heat exchanger inlet valve:

2CC-1-5, 21 CC HX INLT

OR

2CC-1-6, 22 CC HX INLT

- B. **CLOSE** or **verify** CLOSED the following cross-connect valves to separate the CC Systems:

CC-1-15, U1/U2 CC PMPS SUCT X-TIE

CC-1-16, U1/U2 CC PMPS DISCH X-TIE

2CC-1-11, 21 CC PMP SUCT X-TIE

2CC-1-13, 21 CC PMP DISCH X-TIE

2CC-1-12, 22 CC PMP SUCT X-TIE

2CC-1-14, 22 CC PMP DISCH X-TIE

CC-1-11, 11 CC PMP SUCT X-TIE

CC-1-13, 11 CC PMP DISCH X-TIE

CC-1-12, 12 CC PMP SUCT X-TIE

CC-1-14, 12 CC PMP DISCH X-TIE



<b>C</b> Section	TITLE	NUMBER:
	<b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b>	<b>1C14 AOP3</b>
		REV: <b>3</b>
		Page 8 of 11

C. Un-Isolate 11 CC Surge Tank as follows:

1. Place the following breakers to "ON:"

MCC 1K1-B4, 11 CC PMP SUCT MV-32200

MCC 1KA2-E2, 12 CC PMP SUCT MV-32201

2. IF applicable, THEN remove secure cards attached in  
Step 2.4.8:

CS-46033, 11 CC PMP SUCT MV-32200

CS-46035, 12 CC PMP SUCT MV-32201

3. OPEN MV-32200, 11 CC SURGE TNK TO 11 CC  
PUMP, using CS-46033

4. OPEN MV-32201, 11 CC SURGE TNK TO 12 CC  
PUMP, using CS-46035

5. Place the following breakers to "OFF:"

MCC 1K1-B4, 11 CC PMP SUCT MV-32200

MCC 1KA2-E2, 12 CC PMP SUCT MV-32201

6. OPEN CC-30-12, 11 CC PMP RECIRC LINE

7. OPEN CC-30-11, 12 CC PMP RECIRC LINE

8. OPEN CC-27-8, 11 CC SURGE TNK X-TIE ISOL

<div>C</div> <div>Section</div>	TITLE  CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM	NUMBER:
		1C14 AOP3
		REV: 3
		Page 9 of 11

2.5.2 WHEN a Unit 1 CC pump is available, THEN restore the CC Systems to normal lineup:

A. **Un-Isolate** 11 CC Surge Tank as follows:

1. **Place** the following breakers to "ON:"

**MCC 1K1-B4, 11 CC PMP SUCT MV-32200**

**MCC 1KA2-E2, 12 CC PMP SUCT MV-32201**

2. IF applicable, THEN remove secure cards attached in Step 2.4.8:

**CS-46033, 11 CC PMP SUCT MV-32200**

**CS-46035, 12 CC PMP SUCT MV-32201**

3. **OPEN MV-32200, 11 CC SURGE TNK TO 11 CC PUMP, using CS-46033**

4. **OPEN MV-32201, 11 CC SURGE TNK TO 12 CC PUMP, using CS-46035**

5. **Place** the following breakers to "OFF:"

**MCC 1K1-B4, 11 CC PMP SUCT MV-32200**

**MCC 1KA2-E2, 12 CC PMP SUCT MV-32201**

6. **OPEN CC-30-12, 11 CC PMP RECIRC LINE**

7. **OPEN CC-30-11, 12 CC PMP RECIRC LINE**

8. **OPEN CC-27-8, 11 CC SURGE TNK X-TIE ISOL**

<b>C</b> Section	<b>TITLE</b>  <b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b>	<b>NUMBER:</b>  <b>1C14 AOP3</b>
		<b>REV:</b> <b>3</b>
		<b>Page 10 of 11</b>

<b>NOTE:</b>	Cooling water header pressure decreases when starting a CC pump due to cooling water flow through the CC heat-exchanger. This could result in an auto start of a cooling water pump at the following pressures:			
	<table> <tr> <td>• 121 MD CLG WTR PMP</td> <td>80 psig</td> </tr> <tr> <td>• 12 or 22 DD CLG WTR PMP</td> <td>75 psig</td> </tr> </table>	• 121 MD CLG WTR PMP	80 psig	• 12 or 22 DD CLG WTR PMP
• 121 MD CLG WTR PMP	80 psig			
• 12 or 22 DD CLG WTR PMP	75 psig			

B. Start a Unit 1 CC pump.

CS-46036, 11 CC WTR PUMP

OR

CS-46037, 12 CC WTR PUMP

C. IF a CC HX inlet valve was CLOSED in Step 2.4.13, THEN OPEN the CC heat exchanger inlet valve:

2CC-1-5, 21 CC HX INLT

OR

2CC-1-6, 22 CC HX INLT

D. CLOSE OR verify CLOSED the following cross-connect valves:

CC-1-15, U1/U2 CC PMPS SUCT X-TIE

CC-1-16, U1/U2 CC PMPS DISCH X-TIE

2CC-1-11, 21 CC PMP SUCT X-TIE

2CC-1-13, 21 CC PMP DISCH X-TIE

2CC-1-12, 22 CC PMP SUCT X-TIE

2CC-1-14, 22 CC PMP DISCH X-TIE

CC-1-11, 11 CC PMP SUCT X-TIE

CC-1-13, 11 CC PMP DISCH X-TIE

CC-1-12, 12 CC PMP SUCT X-TIE

CC-1-14, 12 CC PMP DISCH X-TIE

<b>C</b> Section	TITLE	NUMBER:
	<b>CROSS-CONNECTING UNIT 2 TO UNIT 1 COMPONENT COOLING SYSTEM</b>	<b>1C14 AOP3</b>
		REV: <b>3</b>
		Page 11 of 11

### 3.0 ATTACHMENTS

NONE

### 4.0 REFERENCES

#### 4.1 Developmental References

4.1.1 NF-39245 (CC System Flow Diagram Unit 1)

4.1.2 NF-39246 (CC System Flow Diagram Unit 2)

#### 4.2 Implementing References

NONE

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 1 of 19

0 Attachments

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O.C. REVIEW DATE:	OWNER:	EFFECTIVE DATE
6/23/99	D Smith	11/16/01

Checklist Performed Associated with: Unit # \_\_\_\_\_, Heatup # \_\_\_\_\_, Startup # \_\_\_\_\_

State Other Reason: \_\_\_\_\_

CHECKLIST PERFORMERS NAMES AND INITIALS AS USED IN CHECKLIST			
Print Name:	Initials:	Print Name:	Initials:
Print Name:	Initials:	Print Name:	Initials:
Print Name:	Initials:	Print Name:	Initials:

Completion Date: \_\_\_\_\_ Time: \_\_\_\_\_

Shift Supervisor Review: \_\_\_\_\_

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 2 of 19

**SPECIAL INSTRUCTIONS:**

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ S.S. \_\_\_\_\_

COMPONENTS	DESCRIPTION	STATUS	INITIAL	REV
	<b>A. PLANT STATUS</b>			
SYSTEM	COOLING WATER SYSTEM TO CC SYSTEM	IN SERVICE		
SYSTEM	MAKEUP TO UNIT 1 CC SURGE TANK	IN SERVICE		
SYSTEM	INSTRUMENT AIR SYSTEM TO CC CONTROL VALVES	IN SERVICE		
SYSTEM	ELECTRICAL SYSTEM BUS 15 AND 16	IN SERVICE		
SYSTEM	RADIATION MONITOR 1R-39	IN SERVICE		
	<b>B. CONTROL ROOM UNIT 1 COMPONENT COOLING PANEL</b>			
CS-46036	11 CC WTR PUMP	NEUTRAL		
11 CC PUMP	11 CC WTR PUMP (RUNNING OR STANDBY)	CIRCLE CONDITION		
CS-46037	12 CC WTR PUMP	NEUTRAL		
12 CC PUMP	12 CC WTR PUMP (RUNNING OR STANDBY)	CIRCLE CONDITION		
CS-46033	11 CC SURGE TNK TO 11 CC PUMP, MV-32200	NEUTRAL/ OPEN		
CS-46064	122 SFP HX INLT HDR MV-32115 B	NEUTRAL/ OPEN		
CS-46035	11 CC SURGE TNK TO 12 CC PUMP, MV-32201	NEUTRAL/ OPEN		

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 3 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	IV
	<b>B. CONTROL ROOM - UNIT 1 (CONT'D)</b>			
CS-46029	11 CC HX OUTLET XOVER ISOL, MV-32120	AUTO/OPEN		
CS-46063	11 CC HDR TO WASTE DISPOSAL HX, MV-32102	*NEUTRAL/∇		
CS-46032	12 CC HX OUTLET XOVER ISOL, MV-32121	AUTO/OPEN		
CS-46028	11 RCP CC INLET & OUTLET, MV-32089 & MV-32090	NEUTRAL/ NOT LIT/ BKR OPEN		
CS-46030	EXCESS LETDOWN HX CC INLET & OUTLET, MV-32095 AND MV-31252	AUTO/ CLOSED		
CS-46031	12 RCP CC INLET & OUTLET, MV-32091 & MV-32092	NEUTRAL/ NOT LIT/ BKR OPEN		
CS-46023	11 RHR HX CC INLET, MV-32093	AUTO/∇		
CS-46025	RX M-U TO 11 CC SURGE TNK, MV-32375	NEUTRAL/ OPEN		
CS-46027	12 RHR HX CC INLET, MV-32094	AUTO/∇		
CS-46022	11 RCP THERMAL BARRIER CLNT OUTLET, CV-31245	AUTO/OPEN		
CS-46024	11 CC SURGE TANK VENT, MV-32088	NEUTRAL/ OPEN		
CS-46026	12 RCP THERMAL BARRIER CLNT OUTLET, CV-31246	AUTO/OPEN		
FI-4100803	11 CC HX OUTLET FLOW **(230-4000 GPM) _____ GPM	RECORD STATUS		
FI-4100903	12 CC HX OUTLET FLOW **(230-4000 GPM) _____ GPM	RECORD STATUS		

\* ONLY ONE UNIT'S VALVE FOR THE WASTE DISPOSAL HX IS TO BE OPEN AT A TIME (WITH THE APPROPRIATE ASSOCIATED MANUAL VALVE POSITIONED OPEN).

∇ POSITION DETERMINED BY SHIFT SUPERVISOR.

\*\* APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 4 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	IV
	<b>B. CONTROL ROOM - UNIT 1 (CONT'D)</b>			
TI-4100802	11 CC HX OUTLET TEMPERATURE **(80-105°F) _____ °F	RECORD STATUS		
TI-4100902	12 CC HX OUTLET TEMPERATURE **(80-105°F) _____ °F	RECORD STATUS		
PI-4100801	11 CC PUMP DISCHARGE PRESSURE **(80-120 PSIG) _____ PSIG	RECORD STATUS		
PI-4100901	12 CC PUMP DISCHARGE PRESSURE **(80-120 PSIG) _____ PSIG	RECORD STATUS		
LI-41007	11 CC SURGE TANK LEVEL (+16" MAX - 6" MIN) _____ INCHES	RECORD STATUS		
FI-4102202	11 LETDOWN HX CC OUTLET FLOW **(225-690 GPM) _____ GPM	RECORD STATUS		
FI-41023	HOT SAMPLE RACK CC OUTLET FLOW **(100 GPM) _____ GPM	RECORD STATUS		
FI-4102201	11 SEAL WATER HX CC OUTLET FLOW **(95 GPM) _____ GPM	RECORD STATUS		
FI-4127601	11 RCP CC OUTLET FLOW **(198 GPM) _____ GPM	RECORD STATUS		
FI-4127701	12 RCP CC OUTLET FLOW **(198 GPM) _____ GPM	RECORD STATUS		
TI-4127602	11 RCP CC OUTLET TEMP **(80-105°F) _____ °F	RECORD STATUS		
TI-4127702	12 RCP CC OUTLET TEMP **(80-105°F) _____ °F	RECORD STATUS		
FI-4102002	11 RHR HX CC OUTLET FLOW **(2500 GPM) _____ GPM	RECORD STATUS		
FI-4102102	12 RHR HX CC OUTLET FLOW **(2500 GPM) _____ GPM	RECORD STATUS		
FI-4102001	11 RHR HX CC INLET FLOW **(2500 GPM) _____ GPM	RECORD STATUS		

\*\* APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.



<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 5 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIALS	IV
	<b>B. CONTROL ROOM - UNIT 1 (CONT'D)</b>			
FI-4102101	12 RHR HX CC INLET FLOW **(2500 GPM) _____ GPM	RECORD STATUS		
47020-0302	12 CC PUMP LOCAL CONTROL, SI AUTO START BLOCKED	NOT LIT		
47020-0301	11 CC PUMP LOCAL CONTROL, SI AUTO START BLOCKED	NOT LIT		
CS-46044	11 CC HX CLG WTR INLET, MV-32145	AUTO/∇		
CS-46047	12 CC HX CLG WTR INLET, MV-32146	AUTO/∇		
	<b>UNIT 1 CVCS LETDOWN PANEL</b>			
1HC130 (4302502)	LTDWN TEMP CNTRL CV-31202	AUTO		
	<b>UNIT 2 COMPONENT COOLING PANEL</b>			
CS-46571	21 CC HDR TO WASTE DISPOSAL HX, MV-32104	*NEUTRAL/∇		
FI-41518	COLD SAMPLE RACK CC OUTLET FLOW **(100 GPM) _____ GPM	RECORD STATUS		
	<b>C. TURBINE BUILDING, 695' LEVEL</b>			
CC-27-11	COLD SAMPLE CONDITIONING RACK CC INLET (COLD LAB MIDDLE EAST WALL AT CEILING)	OPEN		
CC-27-12	COLD SAMPLE CONDITIONING RACK CC OUTLET (COLD LAB MIDDLE EAST WALL AT CEILING)	OPEN		
CC-71-2	CC RETURN FROM GAS HOUSE (B.6/6.9/705')	OPEN		
CC-71-1	CC SUPPLY TO GAS HOUSE (B.6/7.0/705')	OPEN		

\* ONLY ONE UNIT'S VALVE FOR THE WASTE DISPOSAL HX IS TO BE OPEN AT A TIME  
(WITH THE APPROPRIATE ASSOCIATED MANUAL VALVE POSITIONED OPEN).

∇ POSITION DETERMINED BY SHIFT SUPERVISOR.

\*\* APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

<div>C</div> <div>CHECKLIST</div>	UNIT 1 COMPONENT COOLING SYSTEM	NUMBER:
		C1.1.14-1
		REV: 18
		Page 6 of 19

	<b>D. AUX BLDG 695' - GENERAL AREA</b>			
<b>CC-27-10</b>	CC TO COLD CHEM LAB (G.9/7.9/710')	<b>OPEN</b>		
<b>CC-20-4</b>	CC TO CHEM LABS FROM UNIT 1 SUPPLY HEADER (G.9/7.9/710') (ABOVE LADDER @ 13 CHG PMP RM)	<b>CLOSED</b>		
<b>CC-20-5</b>	CC TO HOT CHEM LAB FROM UNIT 2 (G.9/7.9/710') (ABOVE LADDER @ 13 CHG PMP RM)	<b>OPEN</b>		
<b>CC-54-1</b>	CC TO HOT CHEM LAB (H.1/7.9/710')	<b>OPEN</b>		
<b><del>CS-19100</del>MV- 32266</b>	11/12 RCP CC INLET ISOL VALVE A <del>MV-32266 (H.6/6.5/700')</del> MV (J.1/6.8/708')	<b>OPEN</b>		
<b>CC-16-3</b>	CC RETURN FROM 11 RCP (UPPER BRG 150 GPM, LOWER BRG 8GPM, THRM BARRIER 40 GPM)	<b>THROTTLED 198-225 GPM ON FI-4127601</b>		
<b>CC-16-2</b>	CC RETURN FROM 12 RCP (UPPER BRG 150 GPM, LOWER BRG 8GPM, THRM BARRIER 40 GPM)	<b>THROTTLED ~198-225 GPM ON FI-4127701</b>		
<b>CC-113-33 ROOT ISOL</b>	11/12 RC PMP CC INLT FI-18301 LO	<b>OPEN</b>		
<b>CC-113-34 ROOT ISOL</b>	11/12 RC PMP CC INLT FI-18301 HI	<b>OPEN</b>		
<b>CC-9-3</b>	121/122 SFP HX CC RET TO UNIT 1 (J.9/6.7/710')	<b>OPEN</b>		
<b><del>CS-19101</del>MV- 32267</b>	11/12 RCP CC INLET ISOL VALVE B <del>MV- 32267 (J.9/6.8/700')</del> MV (H.8/6.7/710')	<b>OPEN</b>		
<b>CC-12-3</b>	CC RETURN FROM 11 LETDOWN HX (J.4/7.0/700')	<b>OPEN</b>		
<b>CC-1-9</b>	CC RETURN HEADER ISOL (J.5/8.0/705')	<b>OPEN</b>		
<b>CC-31-5</b>	CC RAD MONITOR 1R-39 OUTLET (J.5/8.0/706')	<b>OPEN</b>		

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 7 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	IV
	<b>D. AUX BLDG 695' - GENERAL AREA (CONT'D)</b>			
CC-25-1	CC RETURN FROM SW HX (J.5/8.0/713') ABOVE MCC 1G1	OPEN		
CC-21-5	CC RETURN FROM SW HX (J.5/8.0/713') ABOVE MCC 1G1	THROTTLED, ~95-125 GPM ON FI-4102201		
CC-12-2	CC RETURN FROM 11 BA EVAP (J.4/8.0/700')	▽		
CC-20-7	CC FROM HOT CHEM LAB TO UNIT 2 (J.3/9.0/710')	OPEN		
CC-20-6	CC FROM CHEM LABS TO UNIT 1 RETURN HEADER (J.4/9.0/705')	CLOSED		
CC-20-8	CC FROM CHEM LABS TO UNIT 2 RETURN HEADER (ABOVE DECON SHOP BLOCK WALL, 708')	OPEN		
CC-1-10	CC RETURN HEADER ISOL (OPENS IN CLOCKWISE DIRECTION) (LOCATED IN DECON SHOP AREA, 703')	OPEN		
CC-15-3	CC RET FROM WASTE DISPOSAL SYS TO UNIT 1 (K.0/9.8/710')	*▽		
CC-15-4	CC RET FROM WASTE DISPOSAL SYS TO UNIT 2 (J.7/10.8/710')	*▽		
CC-15-2	CC RET FROM 122 WASTE GAS COMP (J.8/10.8/710')	OPEN		
CC-15-1	CC TO 122 WASTE GAS COMP (J.8/10.9/710')	OPEN		
CC-20-9	CC TO CHEM LABS FROM UNIT 2 SUPPLY HEADER (ABOVE 21 CHARGING PUMP ROOM)	OPEN		

\* ONLY ONE UNIT'S VALVE FOR THE WASTE DISPOSAL HX IS TO BE OPEN AT A TIME.

▽ POSITION DETERMINED BY SHIFT SUPERVISOR.

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER: <b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 8 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	IV
	<b>D. AUX BLDG 695' - GENERAL AREA (CONT'D)</b>			
CC-13-1	CC INLET TO 11 BA EVAP CONDENSER (11 BA EVAPORATOR ROOM)	▽		
CC-16-1	CC INLET TO 11 BA EVAP DISTLT CLR (11 BA EVAPORATOR ROOM)	▽		
CC-15-5	CC RETURN FROM BA EVAP DISTLT CLR (11 BA EVAPORATOR ROOM)	▽		
CC-27-6	CC INLET TO BA EVAP VENT COND (11 BA EVAPORATOR ROOM)	▽		
CC-27-7	CC RETURN FROM BA EVAP VENT COND (11 BA EVAPORATOR ROOM)	▽		
FI-18230	11 BORIC ACID EVAP PKG CC OUTLET **(860 GPM) _____ GPM (LEFT SIDE OF AUX BLDG OPS SHACK DOOR)	RECORD STATUS		
	<b>E. CC PUMPS AND HEAT EXCHANGER AREA</b>			
CC-1-11	11 CC PMP SUCT X-TIE (SOUTH END OF 11 HX)	CLOSED		
CS-19606	11 CC PUMP LOCAL/REMOTE SWITCH	REMOTE		
CC-1-1	11 CC PUMP SUCTION	OPEN		
CC-1-3	11 CC PUMP DISCHARGE	OPEN		
CC-30-12	11 CC RECIRC TO SURGE TANK (8' ABOVE 11 CC PUMP)	CLOSED		
CC-113-5 ROOT ISOL	11 CC PMP SUCT STRNR UPSTRM PI-11636	CLOSED		

\*\* APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.  
 ▽ POSITION TO BE DETERMINED BY SHIFT SUPERVISOR.

<div>C</div> <div>CHECKLIST</div>	UNIT 1 COMPONENT COOLING SYSTEM	NUMBER: <div>C1.1.14-1</div>
		REV: 18
		Page 9 of 19

	<b>E. CC PUMPS AND HEAT EXCHANGER AREA (CONT'D)</b>			
<b>CC-113-6 ROOT ISOL</b>	11 CC PMP SUCT STRNR DNSTRM PI-11637	<b>OPEN</b>		
<b>CC-113-1 ROOT ISOL</b>	11 CC PMP DISCH PI-11261	<b>OPEN</b>		
<b>CC-1-7</b>	11 CC HEAT EXCHANGER CC OUTLET (NORTH EAST SIDE OF 11 CC HX)	<b>OPEN</b>		
<b>CC-1-8</b>	12 CC HEAT EXCHANGER CC OUTLET (NORTH EAST SIDE OF 11 CC HX)	<b>OPEN</b>		
<b>CC-31-3</b>	11 CC HX OUTLET TO RAD MONITOR 1R-39 (NORTH END OF 11 CC HX)	<b>OPEN</b>		
<b>CC-31-4</b>	12 CC HX OUTLET TO RAD MONITOR 1R-39 (NORTH END OF 11 CC HX)	<b>OPEN</b>		
<b>CC-113-3 ROOT ISOL</b>	11 CC HX CC OUTL PI-11263	<b>OPEN</b>		
<b>CC-113-9 ROOT ISOL</b>	11 CC PMP DISCH PS-16262	<b>OPEN</b>		
<b>CC-1-5</b>	11 CC HX CC INLET (ABOVE NORTH END OF 11 CC HX)	<b>OPEN</b>		
<b>TC-26331</b>	11 CC HX CW OUTLET CV-31381 CONTROLLER (ON G-LINE WALL, NORTH OF 11 CC HX)	<b>RECORD SETPOINT</b> _____ °F		
<b>TC-26332</b>	12 CC HX CW OUTLET CV-31411 CONTROLLER (ON G-LINE WALL, NORTH OF 12 CC HX)	<b>RECORD SETPOINT</b> _____ °F		
<b>CC-113-4 ROOT ISOL</b>	12 CC HX CC OUTL PI-11264	<b>OPEN</b>		
<b>CC-113-10 ROOT ISOL</b>	12 CC PMP DISCH PS-16263	<b>OPEN</b>		
<b>CC-1-6</b>	12 CC HEAT EXCHANGER CC INLET (ABOVE NORTH END OF 12 CC HX)	<b>OPEN</b>		
<b>CS-19607</b>	12 CC PUMP LOCAL/REMOTE SWITCH	<b>REMOTE</b>		
<b>CC-1-4</b>	12 CC PUMP DISCHARGE	<b>OPEN</b>		

**C**

CHECKLIST

**UNIT 1 COMPONENT COOLING SYSTEM**

NUMBER:

**C1.1.14-1**REV: **18**

Page 10 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	IV
	<b>E. CC PUMPS AND HEAT EXCHANGER AREA (CONT'D)</b>			
CC-30-11	12 CC RECIRC TO SURGE TANK (BY DISCHARGE VALVE)	CLOSED		
CC-1-2	12 CC PUMP SUCTION	OPEN		
CC-113-7 ROOT ISOL	12 CC PMP SUCT STRNR UPSTRM PI-11638	CLOSED		
CC-113-8 ROOT ISOL	12 CC PMP SUCT STRNR DNSTRM PI-11639	OPEN		
CC-113-2 ROOT ISOL	12 CC PMP DISCH PI-11262	OPEN		
CC-1-12	12 CC PMP SUCT X-TIE (SOUTH END OF 22 CC HX, 705')	CLOSED		
CC-1-14	12 CC PUMP DISCH X-CONNECT (BETWEEN SOUTH END OF 12 & 22 CC HX'S)	CLOSED		
CC-1-16	UNITS 1/2 CC PUMPS DISCHARGE X-CONNECT (BETWEEN SOUTH END OF 12 & 21 CC HX'S)	CLOSED		
CC-1-15	UNITS 1/2 CC PUMPS SUCTION X-CONNECT (COUNTERCLOCKWISE TO CLOSE) (SOUTH END OF 21 CC HX)	CLOSED		
CC-1-13	11 CC PUMP DISCH X-CONNECT (BETWEEN SOUTH END OF 11 & 21 CC HX'S)	CLOSED		
	<b>F. RHR PUMP PITS</b>			
CC-35-5	11 RHR PUMP STUFF BOX JACKET CC INLET	OPEN		
CC-35-6	11 RHR PUMP SEAL HX CC INLET	BLOCK & TAG OPEN		
CC-35-8	11 RHR PUMP SEAL HX CC OUTLET	BLOCK & TAG OPEN		
CC-35-7	11 RHR PUMP STUFF BOX JACKET CC OUTLET	OPEN		

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 11 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	IV
	<b>F. RHR PUMP PITS (CONT'D)</b>			
CC-35-2	12 RHR PUMP SEAL HX CC INLET	BLOCK & TAG OPEN		
CC-35-1	12 RHR PUMP STUFF BOX JACKET CC INLET	OPEN		
CC-35-3	12 RHR PUMP STUFF BOX JACKET CC OUTLET	OPEN		
CC-35-4	12 RHR PUMP SEAL HX CC OUTLET	BLOCK & TAG OPEN		
	<b>G. RHR, SI, AND CSP GENERAL AREA</b>			
CC-30-1	12 SI PUMP CC INLET (G.5/5.8/705')	BLOCK & TAG OPEN		
CC-30-3	12 SI PUMP CC OUTLET (G.6/5.8/705')	BLOCK & TAG OPEN		
CC-30-16	12 CS PUMP CC INLET (G.5/5.9/706')	BLOCK & TAG OPEN		
CC-30-18	12 CS PUMP CC OUTLET (G.6/6.0/706')	BLOCK & TAG OPEN		
CC-30-7	12 RHR PUMP CC INLET (G.7/5.8/697')	BLOCK & TAG OPEN		
CC-30-8	12 RHR PUMP CC OUTLET (G.6/6.0/698') RECORD FLOW INDICATED ON FI-18251 (H6 COLUMN) _____ GPM	BLOCK & TAG THROTTLED ~15-30 GPM		
CC-7-1	12 RHR HX CC OUTLET (G.7/6.0/698')	THROTTLED STEM HEIGHT INDICATION LINED UP		
CC-30-10	11 RHR PUMP CC OUTLET (G.9/4.9/698') RECORD FLOW INDICATED ON FI-18250 (H5 COLUMN) _____ GPM	BLOCK & TAG THROTTLED ~15-30 GPM		

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 12 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	IV
	<b>G. RHR, SI, AND CSP GENERAL AREA (CONT'D)</b>			
CC-7-2	11 RHR HX CC OUTLET (G.9/4.9/698')	THROTTLED STEM HEIGHT INDICATION LINED UP		
CC-30-9	11 RHR PUMP CC INLET (H.1/5.0/700')	BLOCK & TAG OPEN		
	<b>H. SI PUMP AREA</b>			
CC-30-6	11 SI PUMP CC OUTLET (ABOVE WALKWAY NEXT TO 12 SI PUMP)	BLOCK & TAG OPEN		
CC-30-4	11 SI PUMP CC INLET (ABOVE WALKWAY NEXT TO 12 SI PUMP)	BLOCK & TAG OPEN		
CC-30-5	11 SI PUMP CC OUTLET  RECORD FLOW INDICATED ON FI-18252 (RIGHT SIDE OF CS PUMP ROOM DOOR) _____ GPM	BLOCK & TAG THROTTLED ~25-30 GPM		
CC-30-2	12 SI PUMP CC OUTLET  RECORD FLOW INDICATED ON FI-18253 (H5 COLUMN) _____ GPM	BLOCK & TAG THROTTLED ~25-30 GPM		
	<b>I. CONTAINMENT SPRAY PUMP ROOM</b>			
CC-35-9	11 CS PUMP SEAL WATER CLR CC INLET	BLOCK & TAG OPEN		
CC-35-10	11 CS PUMP SEAL WATER CLR CC OUTLET  RECORD FLOW INDICATED ON FI-18259 (ON WALL BETWEEN CS PUMPS) _____ GPM	BLOCK & TAG THROTTLED 8-12 GPM		



<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 13 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	DATE
	<b>I. CONTAINMENT SPRAY PUMP ROOM (CONT'D)</b>			
CC-30-17	11 CS PUMP CC OUTLET (IN OVERHEAD)	BLOCK & TAG OPEN		
CC-30-15	11 CS PUMP CC INLET (IN OVERHEAD)	BLOCK & TAG OPEN		
CC-35-11	12 CS PUMP SEAL WATER CLR CC INLET	BLOCK & TAG OPEN		
CC-35-12	12 CS PUMP SEAL WATER CLR CC OUTLET  RECORD FLOW INDICATED ON FI-18260 (ON WALL BETWEEN CS PUMPS) _____ GPM	BLOCK & TAG OPEN THROTTLED 8-12 GPM		
CC-21-4	CC RETURN FROM 11 EXCESS LETDOWN HX (ABOVE 11 SI RECIRC PUMP)  RECORD FLOW INDICATED ON FI-18272 (ON WALL BY SI RECIRC PUMP) _____ GPM (~235-240 GPM IF IN SERVICE 0 GPM IF OOS)	THROTTLED ~235-240 GPM WHILE IN SERVICE		
	<b>J. AUX BUILDING GENERAL AREA 715' LEVEL</b>			
CC-67-1	HOT LAB CHILLER CC SUPPLY (UNIT OUTSIDE SEAL WATER AND LETDOWN HX ROOM)	OPEN		
CC-67-2	HOT LAB CHILLER CC OUTLET (UNIT OUTSIDE SEAL WATER AND LETDOWN HX ROOM)	OPEN		
CC-12-4	CC INLET TO 11 LETDOWN HEAT EXCHANGER (LETDOWN HEAT EXCHANGER ROOM)	OPEN		

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 14 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	IV
	<b>J. AUX BUILDING GENERAL AREA 715' LEVEL (CONT'D)</b>			
CC-20-2	CC INLET TO SEALWATER HX (SEAL WATER HEAT EXCHANGER ROOM)	OPEN		
DE-29-1	DEMIN WATER TO 11 CC SURGE TANK (REMOTE MANUAL EXTENSION ON WALL NEAR HOT LAB CHILLER, VALVE IN OVERHEAD)	<del>CLOSED</del> OPEN		
CC-28-8	UNIT 1 SAMPLE COOLER CC SUPPLY (HOT LAB SAMPLE ROOM - EAST END)	OPEN		
2CC-28-8	UNIT 2 SAMPLE COOLER CC SUPPLY (HOT LAB SAMPLE ROOM - EAST END)	OPEN		
CC-28-9	UNIT 1 SAMPLE COOLER CC RETURN (HOT LAB SAMPLE ROOM - EAST END)	OPEN		
2CC-28-9	UNIT 2 SAMPLE COOLER CC RETURN (HOT LAB SAMPLE ROOM - EAST END)	OPEN		
	<b>K. AUX BUILDING DROP AREA 720' LEVEL</b>			
CC-43-1	122 SFP HX SPLY ISOL	OPEN		
CC-43-3	122 SFP HX INLT ISOL	OPEN		
CC-44-1	122 SFP HX OUTL ISOL	THROTTLED		
CC-43-5	122 SFP HX RTRN ISOL	OPEN		
CC-43-2	121/122 SFP HX SPLY XTIE ISOL	CLOSED		
CC-43-4	122 SFP HX TEMP SPLY ISOL	CLOSED		
CC-43-6	121/122 SFP HX RTRN XTIE ISOL	CLOSED		
CC-43-7	122 SFP HX TEMP RTRN ISOL	CLOSED		
CC-57-6	CC RETURN FROM RECOMBINERS (OUTSIDE WASTE GAS COMPRESSOR ROOMS)	OPEN		
FI-1826102	122 SFP HX CC INLT FI **(1800 GPM) _____ GPM	RECORD STATUS		

\*\*APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 15 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIALS	IV
CC-57-7	K. AUX BUILDING DROP AREA 715' LEVEL (CONT'D)  CC SUPPLY TO RECOMBINERS (OUTSIDE WASTE GAS COMPRESSOR ROOMS)	OPEN		
CC-15-7	CC TO ADT EVAPORATOR PACKAGE (OUTSIDE WASTE GAS COMPRESSOR ROOMS)	CLOSED		
CC-15-8	CC FROM ADT EVAPORATOR PACKAGE (OUTSIDE WASTE GAS COMPRESSOR ROOMS)	CLOSED		
CC-20-1	121 WASTE EVAP CONDENSER CC INLET	CLOSED		
CC-21-1	121 WASTE EVAP CONDENSER CC OUTLET	CLOSED		
CC-27-5	CC INLET TO 121 WASTE EVAP DISTLT CLR	CLOSED		
CC-27-13	121 WASTE EVAP DISTLT CLR CC OUTLET	CLOSED		
CC-27-3	121 WASTE GAS COMPRESSOR PKG CC INLET	OPEN		
CC-57-3	CC ISOL TO 121 WASTE GAS COMP SEAL	CLOSED		
CC-27-4	121 WASTE GAS COMPRESSOR PKG CC OUTLET	OPEN		
FI-18228	121 WASTE GAS COMP CC WATER OUTLET FLOW **(25-45 GPM) _____ GPM	RECORD STATUS		
FI-18229	122 WASTE GAS COMP CC WATER OUTLET FLOW **(25-45 GPM) _____ GPM	RECORD STATUS		
CC-57-4	CC ISOL TO 122 WASTE GAS COMP SEAL	CLOSED		

\*\* APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 16 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	DATE
	<b>K. AUX BUILDING DROP AREA 715' LEVEL (CONT'D)</b>			
CC-27-1	122 WASTE GAS COMPRESSOR PKG CC INLET	OPEN		
CC-27-2	122 WASTE GAS COMPRESSOR PKG CC OUTLET	OPEN		
CC-27-14	CC INLET TO 123 WASTE GAS COMPRESSOR	OPEN		
CC-27-15	CC OUTLET FROM 123 WASTE GAS COMPRESSOR	OPEN		
FI-18505	123 WASTE GAS COMP CC OUTLET FLOW <b>**</b> (25-45 GPM) _____ GPM	RECORD STATUS		
CC-57-5	CC ISOL TO 123 WASTE GAS COMP SEAL	CLOSED		
	<b>L. AUX BUILDING RECOMBINER AREA 695' LEVEL</b>			
FI-18227	121 WASTE EVAP PACKAGE OUTLET FLOW <b>**</b> (150 GPM) _____ GPM	RECORD STATUS		
CC-57-8	CC RETURN FROM 122 RECOMBINER (122 RECOMBINER ROOM)	OPEN		
CC-57-9	CC SUPPLY TO 122 RECOMBINER (122 RECOMBINER ROOM)	OPEN		
CC-57-10	CC RETURN FROM 121 RECOMBINER (121 RECOMBINER ROOM)	OPEN		
CC-57-11	CC SUPPLY TO 121 RECOMBINER (121 RECOMBINER ROOM)	OPEN		
	<b>M. COMPONENT COOLING SURGE TANK AREA 755' AUX BLDG</b>			
LA-1-47	LEVEL XMTR ISOL VALVE	OPEN		
LA-1-48	LEVEL XMTR ISOL VALVE	OPEN		
CC-59-2	DRAIN, LEVEL XMTR	CLOSED		

\*\* APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 17 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL	IV
CC-33-68	LEVEL XMTR TEST CONNECTION	CLOSED		
	<b>M. COMPONENT COOLING SURGE TANK AREA 755' AUX BLDG (CONT'D)</b>			
CC-19-1	11 CC SURGE TANK OUTLET	OPEN		
CC-26-1	11 CC SURGE TANK DRAIN TO WASTE HOLDUP TANK	CLOSED		
CV-31432	11 CC SURGE TANK MAKEUP WATER CV	AIR SUPPLY OPEN		
CC-33-3	CC SURGE TANK GAUGE GLASS ISOL	OPEN		
CC-33-4	CC SURGE TANK GAUGE GLASS ISOL	OPEN		
	<b>N. CONTAINMENT VALVES</b>			
CC-21-3	CC INLET TO 11 RCP UPPER BRG OIL CLR	OPEN		
CC-31-2	CC INLET TO 11 RCP LOWER BRG OIL CLR	OPEN		
CC-36-4	CC OUTLET FROM 11 RCP LOWER BRG OIL CLR.	THROTTLED ~8-13 GPM		
CC-32-2	CC OUTLET FROM 11 RCP LOWER BRG OIL CLR	OPEN		
CC-22-2	CC OUTLET FROM 11 RCP UPPER BRG OIL CLR	THROTTLED ~150-165 GPM		
CC-28-6	CC OUTLET FROM 11 RCP THRM BARRIER	OPEN		
CC-281-16 ROOT ISOL	11 RC PMP MTR LWR BRG CC OUTL FI-18236 HI	OPEN		
CC-281-15 ROOT ISOL	11 RC PMP MTR LWR BRG CC OUTL FI-18236 LO	OPEN		
CC-281-12 ROOT ISOL	11 RC PMP THERM BARR CC OUTL FI-18234 HI	OPEN		
CC-281-11 ROOT ISOL	11 RC PMP THERM BARR CC OUTL FI-18234 LO	OPEN		

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER:
		<b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 18 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIALS
CC-21-2	CC INLET TO 12 RCP UPPER BRG OIL CLR	OPEN	
	<b>N. CONTAINMENT VALVES (CONT'D)</b>		
CC-31-1	CC INLET TO 12 RCP LOWER BRG OIL CLR	OPEN	
CC-36-3	CC OUTLET FROM 12 RCP LOWER BRG OIL CLR	THROTTLED ~8-13 GPM	
CC-32-1	CC OUTLET FROM 12 RCP LOWER BRG OIL CLR	OPEN	
CC-22-1	CC OUTLET FROM 12 RCP UPPER BRG OIL CLR	THROTTLED ~150-165 GPM	
CC-28-7	CC OUTLET FROM 12 RCP THRM BARRIER	OPEN	
CC-281-18 ROOT ISOL	12 RC PMP MTR LWR BRG CC OUTL FI-18237 HI	OPEN	
CC-281-17 ROOT ISOL	12 RC PMP MTR LWR BRG CC OUTL FI-18237 LO	OPEN	
CC-281-14 ROOT ISOL	12 RC PMP THERM BARR CC OUTL FI-18235 HI	OPEN	
CC-281-13 ROOT ISOL	12 RC PMP THERM BARR CC OUTL FI-18235 LO	OPEN	
	<b>O. CONTAINMENT METERS</b>		
FI-18234	11 RC PMP THERM BARR CC OUTL FI (40 GPM NORMAL) _____ GPM (702') (ON E SIDE WALL 18/138)	RECORD STATUS	
FI-18236	11 RC PMP MTR LBRG CC OUTL FI (~ 8 GPM) _____ GPM (702') (ON E SIDE WALL 18/138)	RECORD STATUS	
FI-18235	12 RC PMP THERM BARR CC OUTL FI (40 GPM NORMAL) _____ GPM (702') (ON N SIDE WALL 17/313)	RECORD STATUS	

<b>C</b> CHECKLIST	<b>UNIT 1 COMPONENT COOLING SYSTEM</b>	NUMBER: <b>C1.1.14-1</b>
		REV: <b>18</b>
		Page 19 of 19

COMPONENTS	DESCRIPTION	STATUS	INITIAL
FI-18237	12 RC PMP MTR LBRG CC OUTL FI (~ 8 GPM) _____ GPM (702') (ON N SIDE WALL 17/313)	RECORD STATUS	

**UNIT 2 COMPONENT COOLING SYSTEM**

NUMBER:

**C1.1.14-2**REV: **22**

Page 1 of 21

0 Attachments

O.C. REVIEW DATE:

**6/23/99**

OWNER:

**D. Smith**

EFFECTIVE DATE

**11/16/01**

Checklist Performed Associated with: Unit # \_\_\_\_\_, Heatup # \_\_\_\_\_, Startup # \_\_\_\_\_

State Other Reason: \_\_\_\_\_

**CHECKLIST PERFORMERS NAMES AND INITIALS AS USED IN CHECKLIST**

Print Name:	Initials:	Print Name:	Initials:
Print Name:	Initials:	Print Name:	Initials:
Print Name:	Initials:	Print Name:	Initials:

Completion Date: \_\_\_\_\_ Time: \_\_\_\_\_

Shift Supervisor Review: \_\_\_\_\_



## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 2 of 21

**SPECIAL INSTRUCTIONS:**

THIS TABLE REQUIRES INDEPENDENT VERIFICATION

COMPONENTS	DESCRIPTION	STATUS	INITIALS
<b>SYSTEM</b>	<b>A. MISCELLANEOUS</b>		
	COOLING WATER SYSTEM TO CC SYSTEM	IN SERVICE	
<b>SYSTEM</b>	MAKEUP TO UNIT 2 CC SURGE TANK	IN SERVICE	
<b>SYSTEM</b>	INSTRUMENT AIR SYSTEM	IN SERVICE	
<b>SYSTEM</b>	ELECTRICIAL SYSTEM BUS 25 AND 26	IN SERVICE	
<b>SYSTEM</b>	RADIATION MONITOR 2R-39	IN SERVICE	
	<b>B. CONTROL ROOM</b>		
<b>FI4151501</b>	21 RSDL HX CC INLET FLOW **(2500 GPM) _____ GPM	RECORD STATUS	
<b>FI4151601</b>	22 RSDL HX CC INLET FLOW **(2500 GPM) _____ GPM	RECORD STATUS	
<b>FI4151502</b>	21 RSDL HX CC OUTLET FLOW **(2500 GPM) _____ GPM	RECORD STATUS	
<b>FI4151602</b>	22 RSDL HX CC OUTLET FLOW **(2500 GPM) _____ GPM	RECORD STATUS	
<b>FI4152701</b>	21 RCP CC OUTLET FLOW **(198 GPM) _____ GPM	RECORD STATUS	
<b>FI4152801</b>	22 RCP CC OUTLET FLOW **(198 GPM) _____ GPM	RECORD STATUS	
<b>TI4152702</b>	21 RCP CC OUTLET TEMP **(80-105°F) _____ °F	RECORD STATUS	
<b>TI4152802</b>	22 RCP CC OUTLET TEMP **(80-105°F) _____ °F	RECORD STATUS	
<b>LI41506</b>	21 CC SURGE TANK LEVEL (+18" MAX, -6" MIN) _____ INCHES	RECORD STATUS	

\*\*APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 3 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIAL	DATE
	<b>B. CONTROL ROOM (CONT'D)</b>			
FI4151701	21 SEAL WATER HX CC OUTLET FLOW **(95 GPM) _____ GPM	RECORD STATUS		
FI4151702	21 LTDN HX CC OUTLET FLOW **(225-690 GPM) _____ GPM	RECORD STATUS		
FI41518	COLD SAMPLE RACK CC OUTLET FLOW **(100 GPM) _____ GPM	RECORD STATUS		
PI4150701	21 CC PUMP DISCH PRESS **(85-120 PSIG) _____ PSIG	RECORD STATUS		
PI4150801	22 CC PUMP DISCH PRESS **(85-120 PSIG) _____ PSIG	RECORD STATUS		
TI4150702	21 CC HX OUTLET TEMP **(80-105°F) _____ °F	RECORD STATUS		
TI4150802	22 CC HX OUTLET TEMP **(80-105°F) _____ °F	RECORD STATUS		
FI4150703	21 CC HX OUTL FLOW **(230-4000 GPM) _____ GPM	RECORD STATUS		
FI4150803	22 CC HX OUTL FLOW **(230-4000 GPM) _____ GPM	RECORD STATUS		
47520-0306	21 CC PUMP LOCAL CONTROL, SI AUTO START BLOCKED	NOT LIT		
47520-0307	22 CC PUMP LOCAL CONTROL, SI AUTO START BLOCKED	NOT LIT		
CS-46566	21 RCP PUMP THERMAL BARRIER CLNT OUTLET CV-31247	AUTO/OPEN		
CS-46527	21 CC SURGE TANK VENT MV-32131	NEUTRAL/OPEN		
CS-46567	22 RCP THERMAL BARRIER CLNT OUTLET CV-31248	AUTO/OPEN		
CS-46526	21 RHR HX CC INLET MV-32128	AUTO/▽		

\*\* APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

▽ POSITION DETERMINED BY SHIFT SUPERVISOR.

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 4 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS	DATE
CS-46528	B. CONTROL ROOM (CONT'D) RX M-U TO 21 CC SURGE TANK MV-32374	NEUTRAL/OPEN		
CS-46530	22 RHR HX CC INLET MV-32129	AUTO/▽		
CS-46531	21 RCP PUMP CC INLET & OUTLET MV-32124 & MV-32125	NETRUAL/ NOT LIT BKR OPEN		
CS-46533	EXCESS LETDOWN HX CC INLET & OUTLET MV-32130 & CV-31253	AUTO/CLOSED		
CS-46534	22 RCP PUMP CC INLET & OUTLET MV-32127 & MV-32126	NETRUAL/ NOT LIT BKR OPEN		
CS-46532	21 CC HX OUTLET X OVER ISOL MV-32122	AUTO/OPEN		
CS-46571	21 CC HDR TO WASTE DISPOSAL HX'S MV-32104	*NEUTRAL/▽		
CS-46535	22 CC HX OUTLET X OVER ISOL MV-32123	AUTO/OPEN		
CS-46536	21 CC SURGE TNK TO 21 CC PUMP MV-32211	NEUTRAL/OPEN		
CS-46572	121 SFP HX INLT HDR MV-32117 A	NEUTRAL/OPEN		
CS-46538	21 CC SURGE TNK TO 22 CC PUMP MV-32212	NEUTRAL/OPEN		
CS-46539	21 CC WTR PUMP	NEUTRAL		
CS-46540	22 CC WTR PUMP	NEUTRAL		
21 CC PUMP	21 CC WTR PUMP (RUNNING OR STANDBY)	CIRCLE CONDITION		
22 CC PUMP	22 CC WTR PUMP (RUNNING OR STANDBY)	CIRCLE CONDITION		

▽ POSITION DETERMINED BY SHIFT SUPERVISOR.

\* ONLY 1 UNIT'S VALVE FOR WASTE DISPOSAL HX IS TO BE OPEN AT A TIME  
(WITH APPROPRIATE MANUAL VALVE OPEN ALSO).

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 5 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS
	<b>B. CONTROL ROOM (CONT'D)</b>		
CS-46517	21 CC HX CLG WTR INLET MV-32160	AUTO/▽	
CS-46520	22 CC HX CLG WTR INLET MV-32161	AUTO/▽	
	<b>UNIT 1 CC PANEL</b>		
FI41023	HOT SAMPLE RACK CC OUTLET FLOW **(100 GPM) _____ GPM	RECORD STATUS	
CS-46063	11 CC HDR TO WASTE DISPOSAL HX MV-32102	*NEUTRAL/▽	
	<b>CVCS PANEL</b>		
2HC-130 43500-02	LTDN TEMP CNTRL CV-31215	AUTO	
	<b>C. CONTAINMENT</b>		
	<b>21 RCP VAULT</b>		
2CC-21-3	CC INLET TO 21 RCP UPPER BRG	OPEN	
2CC-22-2	CC OUTLET FROM 21 RCP UPPER BRG	THROTTLED 150-165 GPM	
2CC-31-2	CC INLET TO 21 RCP LOWER BRG	OPEN	
2CC-32-2	CC OUTLET FROM 21 RCP LOWER BRG	LOCKED OPEN	
2CC-281-15 ROOT ISOL	21 RC PMP MTR LWR BRG CC OUTL FI- 18264 LO	OPEN	
2CC-281-16	21 RC PMP MTR LWR BRG CC OUTL FI- 18264 HI	OPEN	
	<b>OUTSIDE 21 RCP VAULT</b>		
2CC-36-4	CC OUTLET FROM 21 RCP LOWER BRG ASSY (REMOTE OPERATOR)	THROTTLED 8-13 GPM	

\*\* APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

▽ POSITION DETERMINED BY SHIFT SUPERVISOR.

\* ONLY 1 UNIT'S VALVE FOR WASTE DISPOSAL HX IS TO BE OPEN AT A TIME  
(WITH APPROPRIATE MANUAL VALVE OPEN ALSO).

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 6 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIAL	DATE
FI-18262	<b>OUTSIDE 21 RCP VAULT (CONT'D)</b> 21 RCP THERMAL BARRIER RETURN (40 GPM NORMAL) _____ GPM	RECORD STATUS		
FI-18264	21 RC PMP MTR LBRG CC OUTL FI (~8GPM) _____ GPM	RECORD STATUS		
2CC-281-11 ROOT ISOL	21 RC PMP THERM BARR CC OUTL FI FI-18262 LO	OPEN		
2CC-281-12 ROOT ISOL	21 RC PMP THERM BARR CC OUTL FI FI-18262 HI	OPEN		
	<b>22 RCP VAULT</b>			
2CC-21-2	CC INLET TO 22 RCP UPPER BRG	OPEN		
2CC-22-1	CC OUTLET FROM 22 RCP UPPER BRG	THROTTLED 150-165 GPM		
2CC-31-1	CC INLET TO 22 RCP LOWER BRG	OPEN		
2CC-32-1	CC OUTLET OF 22 RCP LOWER BRG	LOCKED OPEN		
2CC-281-17	22 RC PMP MTR LWR BRG CC OUTL FI-18265 LO	OPEN		
2CC-281-18	22 RC PMP MTR LWR BRG CC OUTL FI-18265 HI	OPEN		
	<b>OUTSIDE 22 RCP VAULT</b>			
2CC-36-3	CC OUTLET OF 22 RCP LOWER BRG ASSY (REMOTE OPERATOR)	THROTTLED 8-13 GPM		
FI-18263	22 RCP THERMAL BARRIER RETURN (40 GPM NORMAL) _____ GPM (697' 6" )	RECORD STATUS		
FI-18265	22 RC PMP MTR LBRG CC OUTL FI (~8GPM) _____ GPM	RECORD STATUS		
2CC-281-13	22 RC PMP THERM BARR CC OUTL FI FI-18263 LO	OPEN		
2CC-281-14 ROOT ISOL	22 RC PMP THERM BARR CC OUTL FI FI-18263 HI	OPEN		

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 7 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIAL	DATE
2CC-1-9	<b>D. AUX BLDG</b> <b>CC PUMP AND HEAT EXCHANGER AREA</b> CC RETURN HEADER ISOL (EAST ENTRY TO DECON ABOVE THE HOT SHOP, CHAIN VALVE)	OPEN		
CS-19608	<b>NEAR 21 CC PUMP</b> 21 CC PUMP LOCAL REMOTE SWITCH	REMOTE		
2CC-1-11	21 CC PMP SUCT XTIE (BY AFW FLO GAUGES)	CLOSED		
CC-30-13	21 CC RECIRC TO SURGE TANK (708' ON DISCH)	CLOSED		
2CC-1-3	21 CC PUMP DISCH (708 ELEV)	OPEN		
2CC-113-1 ROOT ISOL	21 CC PMP DISCH PI-11267	OPEN		
2CC-113-6 ROOT ISOL	21 CC PMP SUCT STRNR DNSTRM PI PI-11641	OPEN		
2CC-113-5 ROOT ISOL	21 CC PMP SUCT STRNR UPSTRM PI PI-11640	CLOSED		
2CC-1-1	21 CC PUMP SUCTION VALVE	OPEN		
2CC-113-9 ROOT ISOL	<b>NORTH END OF HX'S</b> 21 CC PMP DISCH PS-16264	OPEN		
2CC-1-5	21 CC HX INLET	OPEN		
TC-26334	21 CC HX CW OUTLET CV-31383 CONTROLLER	RECORD SETPOINT _____°F		
2CC-113-3 ROOT ISOL	21 CC HX CC OUTL PI-11269	OPEN		

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 8 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS	DATE
TC-26335	D. AUX BLDG (CONT'D)  NORTH END OF HX'S (CONT'D)  22 CC HX CW OUTLET CV-31384 CONTROLLER	RECORD SETPOINT ____ °F		
2CC-1-7	21 CC HX CC OUTLET	OPEN		
2CC-31-3	21 CC HX OUTLET TO RAD MONITOR 2R39	OPEN		
2CC-113-4 ROOT ISOL	22 CC HX CC OUTL PI-11270	OPEN		
2CC-31-4	22 CC HX OUTLET TO RAD MONITOR 2R-39	OPEN		
2CC-113-10 ROOT ISOL	22 CC PMP DISCH PS-16265	OPEN		
2CC-1-6	22 CC HX CC INLET VLV	OPEN		
2CC-1-8	22 CC HX CC OUTLET VLV	OPEN		
2CC-1-12	NEAR 22 CC PUMP-ABOVE AFW FLOW GAUGES  22 CC PMP SUCT XTIE	CLOSED		
CS-19609	22 COMP CLG PUMP LOCAL REMOTE CS	REMOTE		
2CC-1-2	22 CC PUMP SUCTION	OPEN		
2CC-113-2 ROOT ISOL	22 CC PMP DISCH PI-11268	OPEN		
2CC-1-4	22 CC PUMP DISCH (ELEV 708')	OPEN		
CC-30-14	22 CC RECIRC TO SURGE TANK (ELEV 708')	CLOSED		
2CC-113-8 ROOT ISOL	22 CC PMP SUCT STRNR DNSTRM PI PI-11643	OPEN		
2CC-113-7 ROOT ISOL	22 CC PMP SUCT STRNR UPSTRM PI PI-11642	CLOSED		

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 9 of 21

COMPONENTS	DESCRIPTION	STATUS	INDA	IV
	<b>D. AUX BLDG (CONT'D)</b>			
	<b>NEAR 22 CC PUMP-ABOVE AFW FLOW GAUGES (CONT'D)</b>			
2CC-1-10	CC RETURN HEADER ISOL (OPENS IN CLOCKWISE DIRECTION) (IN CORNER ABOVE 12 CC MOTOR LOCAL CONTROL SWITCH.)	OPEN		
	<b>SOUTH END OF HX'S</b>			
2CC-1-14	22 CC PUMP DISCH X-CONN TO UNIT 1 (MIDWAY BETWEEN 22 & 12 HX'S)	CLOSED		
CC-1-16	U1/U2 CC PMPS DISCH XTIE (BETWEEN SOUTH END OF 12 & 21 CC HX'S)	CLOSED		
CC-1-15	U1/U2 CC PMPS SUCT XTIE (COUNTERCLOCKWISE TO CLOSE) (SOUTH END OF 21 CCHX)	CLOSED		
2CC-1-13	21 CC PUMP DISCH X-CONN TO UNIT 1 (MIDWAY BETWEEN 12 & 21 HX NEXT TO PILLAR.)	CLOSED		
	<b>SAFETY INJECTION PUMP AREA</b>			
2CC-30-1	22 SI PUMP CC INLET	BLOCK & TAG OPEN		
2CC-30-3	22 SI PUMP CC OUTLET ABOVE (AISLEWAY NEXT TO 21 SI PUMP 710')	BLOCK & TAG OPEN		
2CC-30-4	21 SI PUMP CC INLET (ABOVE AISLE NEXT TO 21 SI PUMP MOTOR 718')	BLOCK & TAG OPEN		
2CC-30-5	21 SI PUMP CC OUTLET (NEXT TO PUMP) RECORD FLOW INDICATED ON FI-18268 _____ GPM	BLOCK & TAG THROTTLED 25-30 GPM		
2CC-113-21 ROOT ISOL	21 SI PUMP CC OUTL FI-18268 LO	OPEN		



## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 10 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>SAFETY INJECTION PUMP AREA (CONT'D)</b>		
2CC-113-22 ROOT ISOL	21 SI PUMP CC OUTL FI-18268 HI	OPEN	
2CC-113-23 ROOT ISOL	22 SI PUMP CC OUTL FI-18269 LO	OPEN	
2CC-113-24 ROOT ISOL	22 SI PUMP CC OUTL FI-18269 HI	OPEN	
2CC-30-2	22 SI PUMP CC OUTLET (NEXT TO PUMP) RECORD FLOW INDICATED ON FI-18269 _____ GPM	BLOCK & TAG THROTTLED 25-30 GPM	
	<b>CONTAINMENT SPRAY PUMP ROOM</b>		
2CC-30-16	22 CS PUMP CC INLET (708' ELEV ABOVE PHONE)	BLOCK & TAG OPEN	
2CC-35-11	22 CS PUMP SEAL WTR CLR CC INLET	BLOCK & TAG OPEN	
2CC-35-12	22 CS PUMP SEAL WATER CLR CC OUTLET RECORD FLOW INDICATED ON FI-18271 _____ GPM	BLOCK & TAG THROTTLED (8-12 GPM)	
2CC-113-27 ROOT ISOL	22 CS PMP SEAL WTR HX CC OUTL FI FI-18271 LO	OPEN	
2CC-113-28 ROOT ISOL	22 CS PMP SEAL WTR HX CC OUTL FI FI-18271 HI	OPEN	
2CC-30-18	22 CS PUMP CC OUTLET (710' ELEV OVER LADDER TO 21 CSP)	BLOCK & TAG OPEN	
2CC-30-15	21 CS PMP CC INLET (710' ELEV OVER 21 MOTOR)	BLOCK & TAG OPEN	

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 11 of 21

COMPONENTS	DESCRIPTION	STATUS	NOTES
	<b>D. AUX BLDG (CONT'D)</b>		
<b>2CC-35-9</b>	<b>CONTAINMENT SPRAY PUMP ROOM</b> 21 CS PUMP SEAL WTR CLR CC INLET (NEXT TO PMP)	<b>BLOCK &amp; TAG OPEN</b>	
<b>2CC-35-10</b>	21 CS PUMP SEAL WTR CLR CC OUTLET (NEXT TO PMP) RECORD FLOW INDICATED ON FI-18270 _____ GPM	<b>BLOCK &amp; TAG THROTTLED (8-12 GPM)</b>	
<b>2CC-113-25 ROOT ISOL</b>	21 CS PMP SEAL WTR HX CC OUTL FI FI-18270 LO	<b>OPEN</b>	
<b>2CC-113-26 ROOT ISOL</b>	21 CS PMP SEAL WTR HX CC OUTL FI FI-18270 HI	<b>OPEN</b>	
<b>2CC-30-6</b>	21 SI PUMP CC OUTLET (710' ELEV 2 FEET OUT FROM 21 MOTOR END)	<b>BLOCK &amp; TAG OPEN</b>	
<b>2CC-30-17</b>	21 CS PUMP CC OUTLET (710' ELEV AT WALL ABOVE 21 CSP LOCAL/REMOTE SWITCH)	<b>BLOCK &amp; TAG OPEN</b>	
<b>2CC-24-1</b>	CC RETURN FROM 21 EX LTDN HX (713' ABOVE SI RECIRC PUMP)  RECORD FLOW INDICATED ON FI-18273 (ON WALL BY SI RECIRC) _____ GPM (235-240 GPM IF IN SERVICE, 0 GPM IF OOS)	<b>THROTTLE 235-240 GPM WHILE IN SERVICE</b>	
<b>2CC-281-19 ROOT ISOL</b>	21 EXCS LTDN HX CC OUTL FI FI-18273 LO	<b>OPEN</b>	
<b>2CC-281-20 ROOT ISOL</b>	21 EXCS LTDN HX CC OUTL FI FI-18273 HI	<b>OPEN</b>	

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 12 of 21

COMPONENTS	DESCRIPTION	STATUS	
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>RHR PUMP AREA</b>		
2CC-113-19 ROOT ISOL	22 RHR PMP CC OUTL FI FI-18267 LO	OPEN	
2CC-113-20 ROOT ISOL	22 RHR PMP CC OUTL FI FI-18267 HI	OPEN	
2CC-30-8	22 RHR PMP CC OUTLET RECORD FLOW INDICATED ON FI-18267 _____ GPM	BLOCK & TAG THROTTLE 15-30 GPM	
2CC-7-1	22 RHR HX CC OUTLET	THROTTLED STEM HEIGHT INDICATION LINED UP	
2CC-30-7	22 RHR PUMP CC INLET	BLOCK & TAG OPEN	
2CC-30-9	21 RHR PUMP CC INLET	BLOCK & TAG OPEN	
2CC-7-2	21 RHR HX CC OUTLET	THROTTLED STEM HEIGHT INDICATION LINED UP	

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 13 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>RHR PUMP AREA (CONT'D)</b>		
2CC-30-10	21 RHR PUMP CC OUTLET RECORD FLOW INDICATED ON FI-18266 _____ GPM	BLOCK & TAG THROTTLE 15-30 GPM	
2CC-113-17 ROOT ISOL	21 RHR PMP CC OUTL FI FI-18266 LO	OPEN	
2CC-113-18 ROOT ISOL	21 RHR PMP CC OUTL FI FI-18266 HI	OPEN	
	<b>21 RHR PIT</b>		
2CC-35-5	21 RHR PUMP STUFF BOX JKT CC INLET	OPEN	
2CC-35-6	21 RHR PUMP SEAL HX CC INLET	BLOCK & TAG OPEN	
2CC-35-7	21 RHR PUMP STUFF BOX JKT CC OUTLET	OPEN	
2CC-35-8	21 RHR PUMP SEAL HX CC OUTLET	BLOCK & TAG OPEN	
	<b>22 RHR PIT</b>		
2CC-35-2	22 RHR PUMP SEAL HX CC INLET	BLOCK & TAG OPEN	
2CC-35-1	22 RHR PUMP STUFF BOX JKT CC INLET	OPEN	
2CC-35-3	22 RHR PUMP STUFF BOX JKT CC OUTLET	OPEN	
2CC-35-4	22 RHR PUMP SEAL HX CC OUTLET	BLOCK & TAG OPEN	

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 14 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>BY UNIT 2 CHG PUMPS</b>		
MV-32269	21/22 RCP CC INLT MV (H.5/11.1/708')	OPEN	
CC-20-9	CC TO CHEM LABS FROM UNIT 2 SUPPLY HEADER (ABOVE 21 CHG PMP ROOM NORTHEAST CORNER)	OPEN	
2CC-16-3	<b>OUTSIDE EAST WALL OF CS ROOM</b> CC RTRN FROM 21 RCP (UPPER BRG 150 GPM, LOWER BRG 8 GPM, THERMAL BARRIER 40 GPM)	THROTTLED 198-225 GPM ON FI-4152701	
MV-32268	21/22 RCP CC INLT MV (J.4/11.6/708')	OPEN	
2CC-113-29 ROOT ISOL	21/22 RC PMP CC INLT FI FI-18302 LO	OPEN	
2CC-113-30 ROOT ISOL	21/22 RC PMP CC INLT FI FI-18302 HI	OPEN	
2CC-16-2	CC RTRN FROM 22 RCP (UPPER BRG 150 GPM, LOWER BRG 8 GPM, THERMAL BARRIER 40 GPM)	THROTTLED 198-225 GPM ON FI-4152801	
2CC-281-1 ROOT ISOL	<b>WALKWAY BY DECON AREA</b> 21 BA EVAP/DISTL CLR CC OUTL FI FI-18258 LO	OPEN	
2CC-281-2 ROOT ISOL	21 BA EVAP/DISTL CLR CC OUTL FI FI-18258 HI	OPEN	
CC-12-8	CC RETURN FROM BA EVAP (J.5/10.5 710') (CHAIN OPERATOR SW CORNER OF DECON ROOM)	OPEN	
CC-9-4	121/122 SFP HX RET TO UNIT 2 (J.8/6.7 710' CHAIN OPERATOR OUTSIDE AUX BUILDING OPERATORS SHACK)	OPEN	

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 15 of 21

COMPONENTS	DESCRIPTION	STATUS	INSTRUMENT
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>WALKWAY BY DECON AREA (CONT'D)</b>		
CC-15-2	CC RET FROM 122 WASTE GAS COMP (J.7/10.5/710')	OPEN	
CC-15-1	CC TO 122 WASTE GAS COMP FROM UNIT 1 (J.8/10.7/710')	OPEN	
CC-15-4	CC RET FROM WASTE DSPL SYS. TO UNIT 2 (J.4/10.7/711') (REMOTE OPERATOR BEHIND 21 BA EVAP PANEL K.2/10.6)	*▽	
2CC-31-5	CC RAD MON. 2R39 OUTLET (J.5/9.9/707') (ABOVE ULTRASONIC CLEANER POWER PANEL)	OPEN	
CC-20-8	CC FROM CHEM LABS TO UNIT 2 RETURN HEADER (ABOVE VENT DUCT 708) (J.4/10.2/710')	OPEN	
CC-25-2	21 SEAL WTR HX CC OUTLET (ABOVE VENT DUCTS) (J.5/10.5/711')	OPEN	
CC-21-6	CC RETURN FROM SEAL WTR HX (J.6/10.5/711')	THROTTLED 95-125 GPM ON FI-4151701	
CC-12-6	CC RETURN FROM 21 LTDN HX (ABOVE VENT DUCT J.7/10.4/710') (CHAIN OPERATOR)	OPEN	
CC-15-3	CC RET FROM WASTE DSPL SYS TO UNIT 1 (K.1/9.9/706') (REMOTE OPERATOR AGAINST SO. WALL)	*▽	
CC-20-7	CC FROM HOT CHEM LAB TO UNIT 2 (ABOVE DECON AREA) (J.4/9.0/708')	OPEN	

▽ POSITION DETERMINED BY SHIFT SUPERVISOR.

\* ONLY 1 UNIT'S VALVE FOR THE WASTE DISPOSAL SYSTEM IS TO BE OPEN AT A TIME

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 16 of 21

COMPONENTS	DESCRIPTION	STATUS	DATE	BY
	<b>D. AUX BLDG (CONT'D)</b>			
	<b>WALKWAY BY DECON AREA (CONT'D)</b>			
CC-20-6	CC FROM CHEM LABS TO UNIT 1 RETURN HEADER (ABOVE DECON AREA) (J.4/8.9/708')	CLOSED		
CC-281-33 ROOT ISOL	HOT SMPL RACK CC OUTL F XMTR FT-23087 LO	OPEN		
CC-281-34 ROOT ISOL	HOT SMPL RACK CC OUTL F XMTR FT-23087 HI	OPEN		
	<b>21 BORIC ACID EVAP ROOM</b>			
CC-13-2	CC INLET TO BA EVAP CONDENSER	▽		
CC-16-4	CC INLET TO BA EVAP DISTLT CLR	▽		
CC -12-5	CC RETURN FROM BA EVAP CONDENSER	OPEN		
2CC-27-6	CC INLET TO VENT CONDENSER	▽		
2CC-27-7	CC RETURN FROM VENT CONDENSER	CLOSED		
CC-15-6	CC RETURN FROM BA EVAP DISTLT CLR	CLOSED		
	THE CHECKLISTS FOR THE WASTE AND ADT EVAP, GAS COMPRESSOR PACKAGES AND THE RECOMBINERS ARE NOT NECESSARY IF UNIT 1 CC IS IN SERVICE SUPPLYING THESE COMPONENTS. I.E. MV-32102 AND CC-15-3 ARE OPEN AND MV-32104 AND CC-15-4 ARE CLOSED.			
	<b>WASTE EVAP. (ROOM)</b>			
CC-20-1	CC INLET 121 WASTE EVAP CONDENSER	CLOSED		

▽ POSITION DETERMINED BY SHIFT SUPERVISOR.

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 17 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>WASTE EVAP. (ROOM) (CONT'D)</b>		
CC-21-1	CC OUTLET 121 WASTE EVAP CONDENSER	CLOSED	
CC-27-5	CC INLET TO 121 WASTE EVAP DISTLT CLR	CLOSED	
CC-27-13	121 WASTE EVAP DISTLT CLR CC OUTLET	CLOSED	
	<b>WASTE GAS COMP PKR</b>		
CC-27-3	CC INLET TO 121 WASTE GAS COMP HX	OPEN	
CC-57-3	CC ISOL TO 121 WASTE GAS COMP SEAL	CLOSED	
CC-27-4	CC OUTLET 121 WASTE GAS COMP CC PKG	OPEN	
FI-18228	121 WG COMPR HX CC WATER OUTLET FLOW **(45 GPM) _____ GPM	RECORD STATUS	
CC-281-3 ROOT ISOL	121 WG COMPR HX CC OUTL FI FI-18228 LO	OPEN	
CC-281-4 ROOT ISOL	121 WG COMPR HX CC OUTL FI FI-18228 HI	OPEN	
CC-27-1	CC INLET TO 122 WASTE GAS COMP	OPEN	
CC-57-4	CC ISOL TO 122 WASTE GAS COMP SEAL	CLOSED	
CC-27-2	CC OUTLET 122 WASTE GAS COMP	OPEN	
FI-18229	122 WASTE GAS COMP CC WATER OUTLET FLOW **(45 GPM) _____ GPM	RECORD STATUS	
CC-281-5 ROOT ISOL	122 WG COMPR HX CC OUTL FI FI-18229 LO	OPEN	
CC-281-6 ROOT ISOL	122 WG COMPR HX CC OUTL FI FI-18229 HI	OPEN	
CC-27-14	CC INLET TO 123 WASTE GAS COMP	OPEN	
CC-57-5	CC ISOL TO 123 WASTE GAS COMP SEAL	CLOSED	

\*\*APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.



## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 18 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>WASTE GAS COMP PKR (CONT'D)</b>		
CC-27-15	CC OUTLET 123 WASTE GAS COMP	OPEN	
FI-18505	123 WASTE GAS COMP CC WATER OUTLET FLOW **(45 GPM) _____ GPM	RECORD STATUS	
CC-281-47 ROOT ISOL	123 WG COMPR HX CC OUTL FI FI-18505 LO	OPEN	
CC-281-48 ROOT ISOL	123 WG COMPR HX CC OUTL FI FI-18505 LO	OPEN	
	<b>ADT EVAP PKG VALVES IN FUEL REC AREA 715' ALONG NORTH WALL</b>		
CC-15-7	CC TO ADT EVAP PKG (ON STAIRWAY LANDING OUTSIDE WGC CAT. 1 DOORS)	CLOSED	
CC-15-8	CC FROM ADT EVAP PKG	CLOSED	
CC-57-7	CC SUPPLY TO 121 & 122 RECOMBINERS	OPEN	
CC-57-6	CC RETURN FROM 121 & 122 RECOMBINERS	OPEN	
FI-18227	121 WST EVAP PKG CC OUTLET FLOW **(150 GPM) _____ GPM (RIGHT SIDE OF RECOMBINER ROOM DOOR)	RECORD STATUS	
CC-281-1 ROOT ISOL	121 WST EVAP CC OUTL FI FI-18227 LO	OPEN	
CC-281-2 ROOT ISOL	121 WST EVAP CC OUTL FI FI-18227 HI	OPEN	

\*\*APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 19 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>RECOMBINERS</b>		
CC-57-11	CC SUPPLY TO 121 RECOMBINER	OPEN	
CC-57-10	CC RETURN FROM 121 RECOMBINER	OPEN	
CC-57-9	CC SUPPLY TO 122 RECOMBINER	OPEN	
CC-57-8	CC RETURN FROM 122 RECOMBINER	OPEN	
	<b>SPENT FUEL POOL HEAT EXCHANGERS</b>		
CC-9-2	121 SFP HX INLT	OPEN	
CC-11-2	121 SFP HX OUTL	THROTTLED	
CC-9-1	121/122 SFP HX SPLY XTIE ISOL	CLOSED	
CC-11-1	121/122 SFP HX RTRN XTIE ISOL	CLOSED	
FI-1826101	121 SFP HX CC INLT FI (1800 GPM)** _____ GPM	RECORD STATUS	
	<b>ABOVE 13 CHG PMP ROOM</b>		
CC-20-4	CC TO CHEM LABS FROM UNIT 1 SUPPLY HEADER (G.9/7.9/710')	CLOSED	
CC-54-1	CC TO HOT CHEM LAB (H.0/7.6/712')	OPEN	
CC-20-5	CC TO HOT CHEM LAB FROM UNIT 2 (G.9/7.9/710')	OPEN	
CC-27-10	CC TO COLD CHEM LAB (J.8/7.7/710') WALL BY LAUNDRY & HOT SHOWER TANK PUMPS	OPEN	

\*\*APPROXIMATE VALUES WHEN EQUIPMENT IS IN SERVICE.

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 20 of 21

COMPONENTS	DESCRIPTION	STATUS	INITIALS
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>HOT CHEMISTRY LAB</b>		
	IF THE HOT CHEMISTRY LAB SAMPLE COOLERS ARE LINED UP TO UNIT 1 CC THIS PORTION OF THE CHECKLIST IS NOT NECESSARY.		
	<b>SAMPLE ROOM BEHIND LEAD DOOR</b>		
2CC-28-8	CC TO UNIT 2 SAMPLE COOLERS	OPEN	
2CC-28-9	CC FROM UNIT 2 SAMPLE COOLERS	OPEN	
CC-28-8	CC TO UNIT 1 SAMPLE COOLERS	OPEN	
CC-28-9	CC FROM UNIT 1 SAMPLE COOLERS	OPEN	
	<b>AUX BLDG 715</b>		
2DE-29-1	DEMIN WTR TO 21 CC SURGE TANK NORTHWEST SIDE OF KB11 PILLAR 722'	OPEN	
	<b>LTDN &amp; SEAL WTR RTR HX ROOMS</b>		
CC-12-7	CC INLET TO 21 LTDN HX K.9/9.3/719'	OPEN	
CC-20-3	21 SEAL WTR HX CC INLET K.9/9.6/719'	OPEN	
	<b>OUTSIDE 11 CVCS HUT ROOM</b>		
CC-43-8	121 SFP HX SPLY ISOL	OPEN	
	<b>SURGE TANK AREA</b>		
2LA-1-47	21 LEVEL XMTR ISOL VALVE (UPPER)	OPEN	
2LA-1-48	21 LEVEL XMTR ISOL VALVE (LOWER)	OPEN	
2CC-19-1	21 CC SURGE TANK OUTLET	OPEN	
2CC-26-1	21 CC SURGE TANK DRAIN TO WASTE HOLD UP TANK	CLOSED	
2CC-33-3	21 CC SURGE TANK GAUGE GLASS ISOL (UPPER)	OPEN	

## UNIT 2 COMPONENT COOLING SYSTEM

NUMBER:

C1.1.14-2

REV: 22

Page 21 of 21

COMPONENTS	DESCRIPTION	STATUS	REMARKS
	<b>D. AUX BLDG (CONT'D)</b>		
	<b>SURGE TANK AREA (CONT'D)</b>		
2CC-33-4	21 CC SURGE TANK GAUGE GLASS ISOL (LOWER)	OPEN	
2CC-27-8	21 CC SURGE TANK XCONN ISOL	OPEN	
CV-31433	21 CC SURGE TANK MAKEUP WATER CV	AIR SUPPLY OPEN	
	<b>E. TURBINE BLDG</b>		
	<b>COLD CHEM LAB (BEHIND THE SAMPLE PANELS)</b>		
CC-27-12	COLD SAMPLE CONDITIONING RACK CC OUTLET (MIDDLE EAST WALL AT CEILING OF COLD LAB)	OPEN	
CC-27-11	COLD SAMPLE CONDITIONING RACK CC INLET (MIDDLE EAST WALL AT CEILING OF COLD LAB) (WATCH OUT FOR HOT TUBING)	OPEN	
	<b>BY UNIT 1 CHEMICAL ADDITION AREA</b>		
CC-71-1	CC SUPPLY TO H <sub>2</sub> /O <sub>2</sub> GENERATOR B.3/7.0/705'	OPEN	
CC-71-2	CC RETURN FROM H <sub>2</sub> /O <sub>2</sub> GENERATOR B.3/7.0/705'	OPEN	